JULY, 1960

Brick & Clay RECORD

A CAHNERS PUBLICATION

This Issue!

- *Government Deals Depletion Setback*
- *Multicored Die Cuts Brick Weight*
- *Full Report on Columbia Brick and Tile Top Operation*

BESSEMER (PA.)
PLANT
OF
METROPOLITAN
BRICK, INC.

world's *largest** *brick kiln* supplied by BONNOT Extruders continuously for 30 year

STEP AHEAD WITH BONNOT

CRUSHERS • HAMMER MILLS • DRY PANS
WET PANS • GRINDERS • FEEDERS • CUTTERS
REPRESSES • SPECIAL MACHINES TO ORDER
DIRECT FOUNDRY SERVICE • DIES • MIXERS
VACUUM MACHINES • SPECIAL EXTRUDERS
AUGER MACHINES • PUG MILLS

You can use your own mathematics to compile **how many millions of brick** have been produced by the pair of Bonnot Extruders installed by Metropolitan Brick, I in their Bessemer (Pa.) plant when it was rebuilt after a fire in 1929.**

Two of eight Bonnot Extruders now operated by Metropolitan, the veteran "Bessemer twin continue to supply the half mile long horseshoe kiln,* longest of its kind in the world.

"Whether it's big, rugged 'pavers' (today used principally for tunnel work and industrial floors) or colorful architectural face brick, these extruders "deliver the goods on their **year-in, year-out schedule,**" according to Ralph G. Sterling, Metropolitan vice president in charge of production.

"Regardless of our demands for quantity and quality," he continues, "Bonnot machines operate efficiently and economically, and when service on wearing parts is necessary, we can count on real cooperation from Bonnot's own foundry."

Proved by Performance . . . Advanced in Design to Meet Modern Demands, Bonnot Equipment can produce profitably in your plant. Your questions will get prompt attention from Bonnot Engineers.

Circle Service No. 10

**Additional Bonnot equipment included 2 Cutters, 2 10' Dry Pans, 2 Plate Feeders, 2 Disc Feeders and 6 Represses.

The BONNOT Co.
CANTON 2, OHIO

"Any one of our *UNIT* ¾-yd. shovels very easily loads 600 tons of clay per day from the solid", says Ralph Veon, President, RALPH A. VEON, Inc., Darlington, Pa.

7 UNITS

in eleven years for Pennsylvania Stripping Contractor

Since 1949 Mr. Veon has used UNIT shovels for contract stripping of fire clay. He now owns seven of them — five ¾-yd. machines, like the Model 1020A shown here, and two ½-yd rigs. "We find these machines very maneuverable and easy to operate," he reports. "Our cost of maintenance has been satisfactory for the past eleven years."

UNITS are easy on the pocketbook because they combine power with design simplicity. With UNIT direct in-line drive from engine to main machinery, you get ample power for heaping loads on every pass. There's no separate right angle gear reducer . . . no wasted horsepower. UNIT one-piece cast main machinery gear case design, with all gears, shafts, and bearings completely enclosed and operating in an oil bath, provides positive protection against wear... assures longer machine life.

All operating clutches are disc type. Engaging pressure is uniformly distributed for maximum length of service from each friction surface. Involute splined shafts are used throughout to provide greater strength and less wear. Gears, worms, turntable rollers and many other parts are drop forged to withstand greater stresses under toughest job conditions.

UNIT shovels and draglines are available in ½-, ⅝-, and ¾-yd. sizes. See your UNIT dealer soon to get complete information on the size you need.

UNIT

UNIT CRANE & SHOVEL CORP.
6649 W. Burnham Street
Milwaukee 19, Wisconsin

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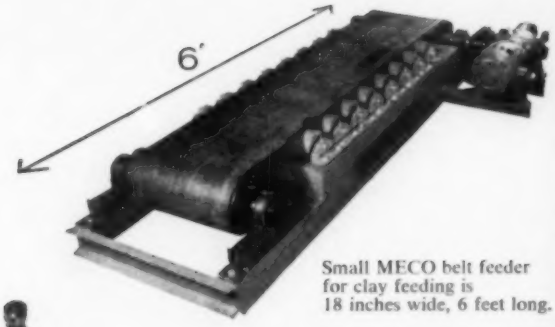
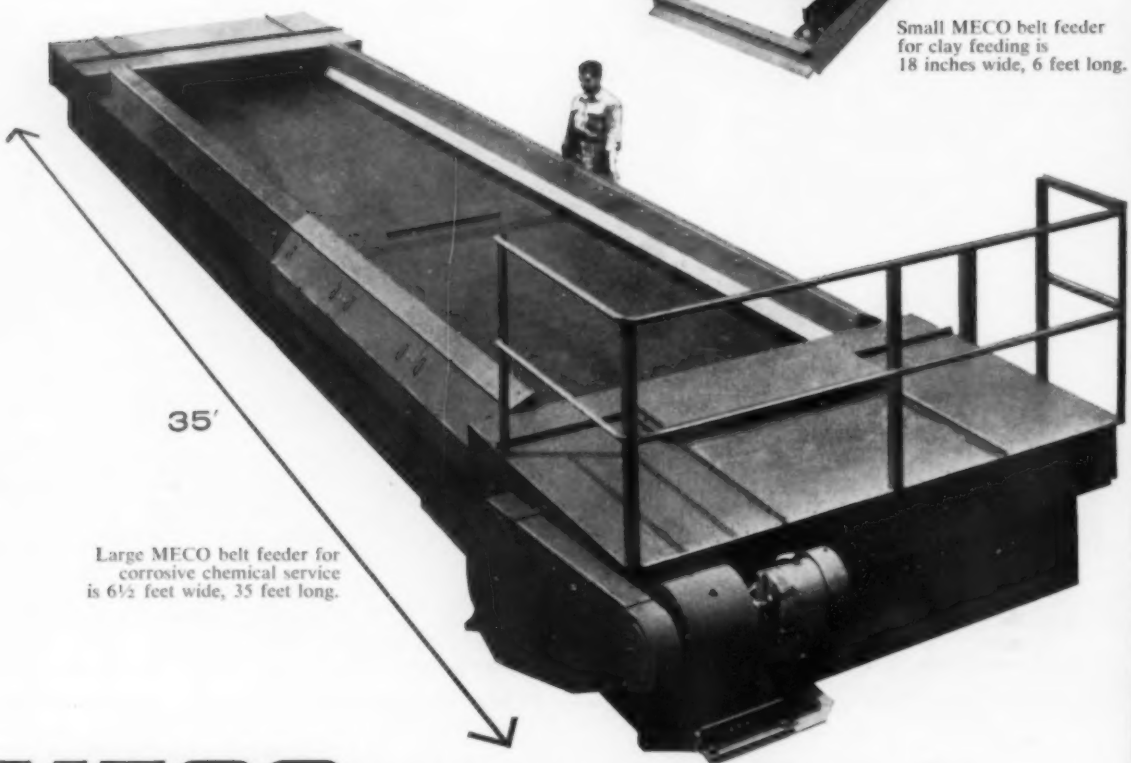


Small MECO belt feeder for clay feeding is 18 inches wide, 6 feet long.



Large MECO belt feeder for corrosive chemical service is 6½ feet wide, 35 feet long.

MECO engineered belt feeders

precise feeding for optimum profits

Of all the ways to feed bulk material, none offers the precise control plus other economic advantages of a MECO engineered belt feeder. It's the new equipment that progressive plants are investigating—and buying—to make all other equipment work at the most profitable capacity.

First, MECO belt feeders can offer infinitely variable speed control, even while operating. Feed rates can be adjusted automatically, or manually if you desire, from a few inches to many feet per minute.

Second, MECO belt feeders let you move materials direct from live bottom bins and hoppers. Because the opening can be as large as desired, there are no bridging problems. You can feed from the tallest silo—or if you are planning new construction, you can specify the largest possible storage facilities.

Third, MECO belt feeders reduce spillage and product contamination, improve housekeeping. Moreover, their rugged, heavy duty construction and simplified design cut maintenance to the bone.

MECO makes every type of feeder—apron, plate, disc, and belt—for an impartial recommendation, you can trust MECO's 50 years of experience. Request Bulletin 601 from The Manufacturers Equipment Company, 218 Madeira Avenue, Dayton, Ohio.

MECO

ENGINEERED CLAYWORKING AND HANDLING EQUIPMENT

Circle Service No. 21

About the cover

From time to time BRICK AND CLAY RECORD *is able to obtain four color reproductions of outstanding examples of finished Brick and Tile work. With this thought in mind we are able to present full color covers to our readers as ample proof of the unlimited potential our products have in the future of this country.*

An amazing example of what can be accomplished with roofing tile is demonstrated in the recently completed largest Catholic church in the Western Hemisphere, located on the campus of the Catholic University, Washington, D. C. The tile, on the church dome and roofs resplendent in all its colors, is the creation of Ludowici Celadon, a roofing tile firm in Chicago. This notable church is named the National Shrine of the Immaculate Conception, patroness of United States Catholics.

According to Col. Charles McGee, vice president of Ludowici Celadon, and the man largely responsible for the outstanding use of tile here, each color applied to the tile and architecturally arranged is symbolic. The blue tile represents the Virgin Mary, yellow is used predominately in the Hebrew Churches, and the red is for Christ's blood. The neutral grey tile makes the other colors stand out.

McGee's company supplied all of the tile for the dome and the lower roofs. Every piece of tile was made specifically for a certain spot on the roof. The dome is two-fire tile and the lower roof is one-fire tile. The dome itself has 47,000 pieces of tile in it and only one piece didn't fit.

No piece of tile has more than one color on it. The bell tower roof, not shown is also made by the same company.

The building of the shrine incidentally was carried out without structural steel.

THE MAGAZINE OF—*Brick—Drain Tile—Structural Tile—Clay Aggregate—Terra Cotta—Roofing Tile—Refractories—Clay Pipe*

VOL. 137, NO. 1, JULY, 1960

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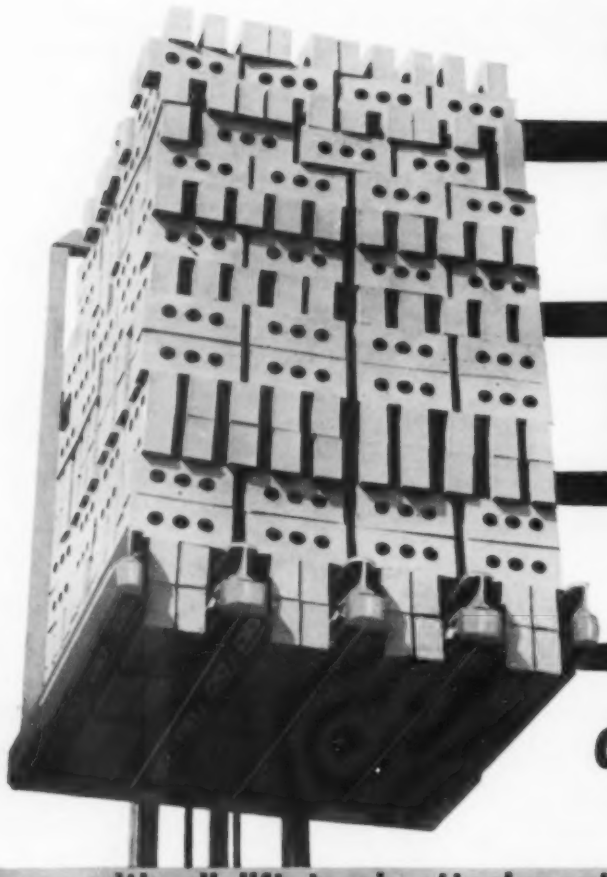
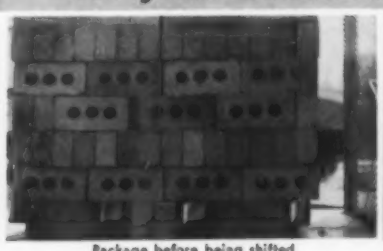
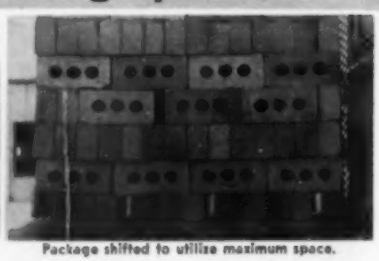


BICKERSTAFF BOOSTS YOUR BRICK HANDLING PROFITS *on every package!*

with all lift truck attachments necessary for your Brick Handling Operation!



Package before being shifted



Package shifted to utilize maximum space.

SIDE-SHIFTER FOR GREATER LOAD EFFICIENCY

The Bickerstaff Side-Shifter adds 8 inches to load positioning. Shifts the package right, 4 inches - left, 4 inches. It's the perfect way to utilize maximum floor space. All movement of the Side-Shifter is controlled by the lift truck operator without leaving his seat. The Side-Shifter is another Bickerstaff profit-maker for you!

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It's adjustable to the height of the package, securing it from the top. Prevents slipping and guards against brick separation as the package is moved about.

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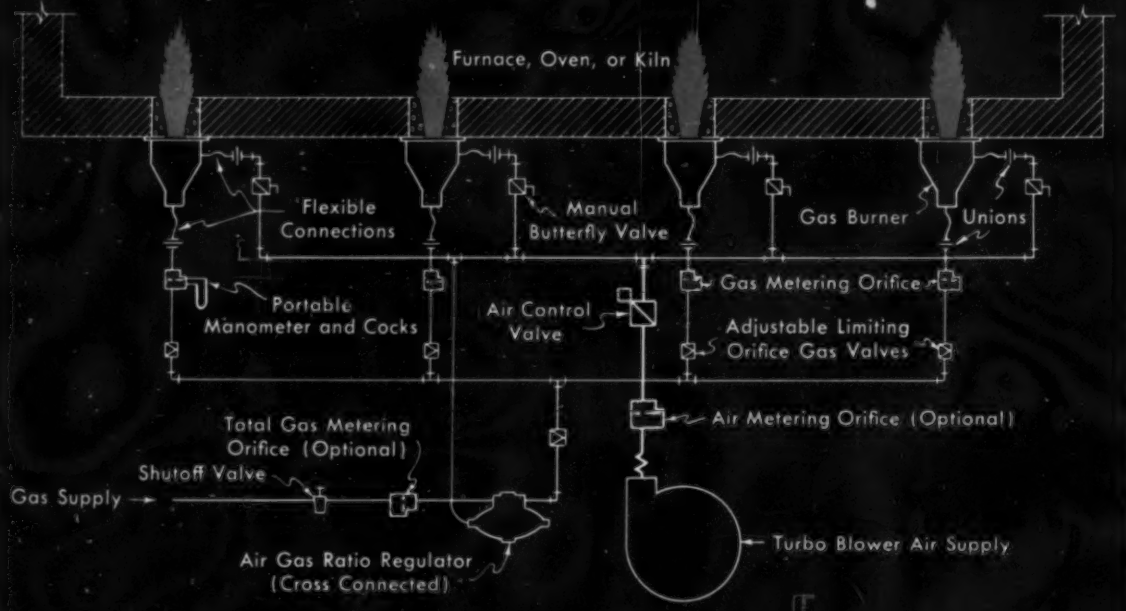
KEEP ALL FLAMES UNIFORM....



with NORTH AMERICAN'S ORIFICE METERING SYSTEM

Simple metering system. Choice of 7 precision ground orifice plates for each pipe size. Change orifices quickly with screwdriver. Portable manometer is easy to keep clean and reliable.

Make each burner fire at the desired rate and gas-air ratio! Use this simple and inexpensive way to accurately measure and balance gas flows to your burners.

Set burners as you wish: all alike, progressively richer or leaner, any way you choose. North American's Orifice Metering System will measure and control fuel to each burner individually or to the entire system.

Call your nearby North American engineer or write for: Bulletin 86.97

NORTH AMERICAN for COMBUSTION and Hydraulic Controls

The North American Mfg. Co.
Cleveland 5, Ohio

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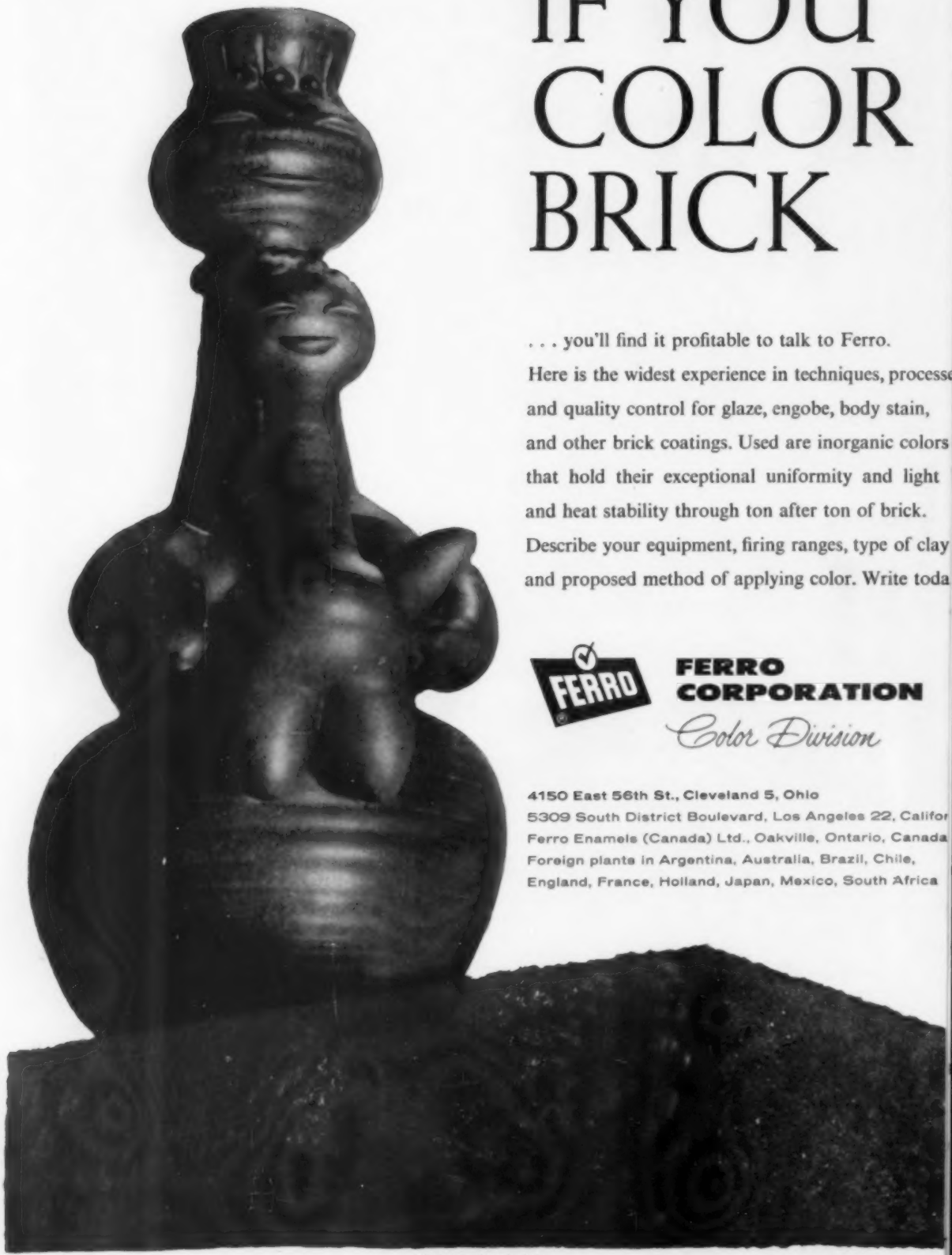

IF YOU COLOR BRICK

. . . you'll find it profitable to talk to Ferro. Here is the widest experience in techniques, processe and quality control for glaze, engobe, body stain, and other brick coatings. Used are inorganic colors that hold their exceptional uniformity and light and heat stability through ton after ton of brick. Describe your equipment, firing ranges, type of clay and proposed method of applying color. Write toda

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Color Division

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Ferro Enamels (Canada) Ltd., Oakville, Ontario, Canada
Foreign plants in Argentina, Australia, Brazil, Chile, England, France, Holland, Japan, Mexico, South Africa

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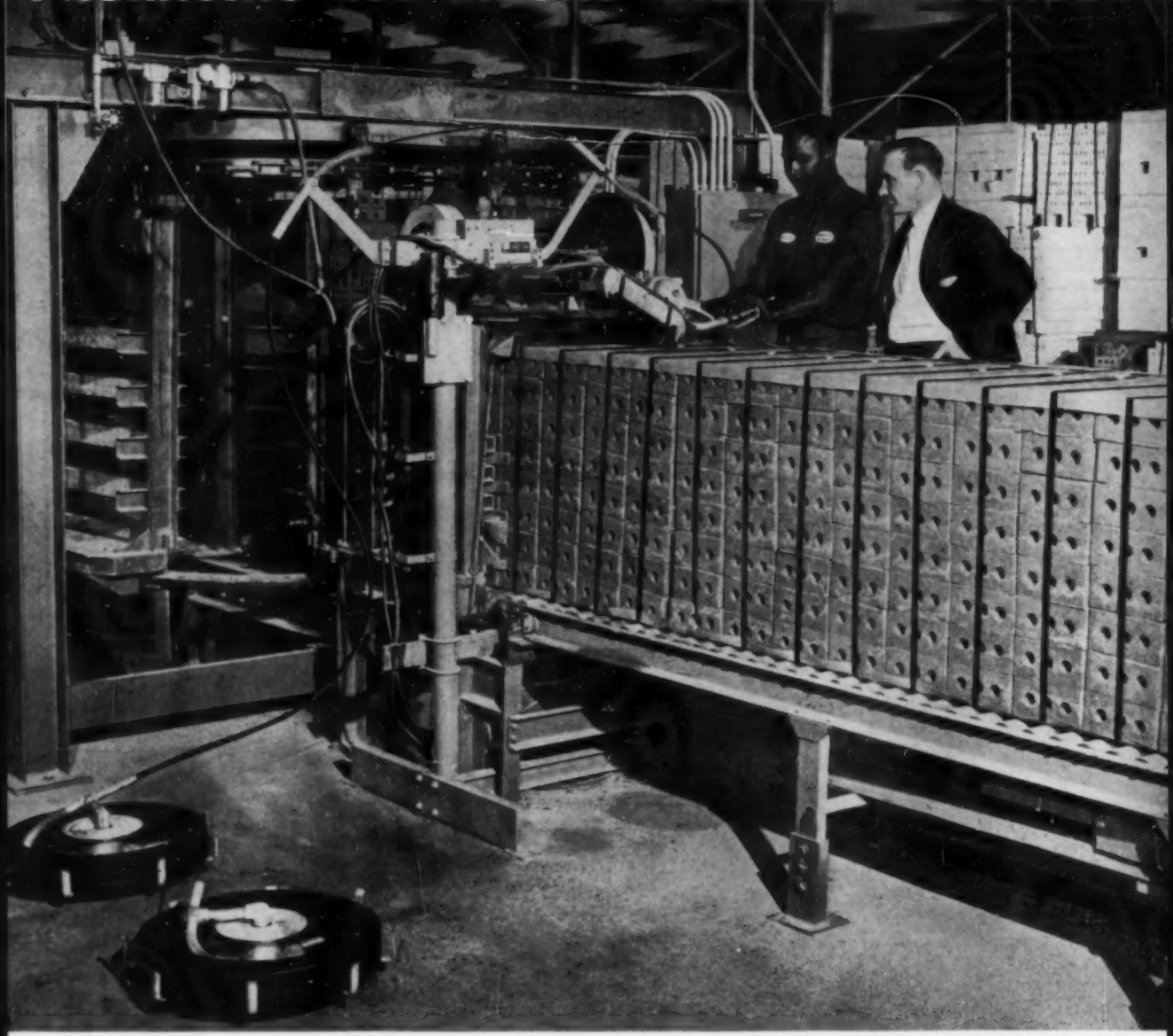
PACKAGING 200 BRICKS EACH 22 SECONDS!



Acme Idea Man Ed Waters views Idea No. S3-70 at Henderson Clay Products, Henderson, Texas.

One field-proven Link-Belt/Acme Steel brick packaging machine worked so economically, Henderson Clay Products bought another.

Each machine can package 120,000 bricks in 100-brick packs per 8 hour day, with only a 7 man crew. With two machines, this producer increases efficiency and output by 40% with existing manpower—packages most of their total daily production of a quarter-million bricks.

Find out more facts about this revolutionary volume brick packaging system today. A color film on the entire method is available for group showing. Write us on your letterhead.

ACME STEEL

IDEA LEADER IN

STRAPPING

Circle Service No. 12

ACME STEEL COMPANY
Acme Steel Products Division
Dept. BCS-70
135th St. & Perry Ave.
Chicago 27, Ill.

Please send me Idea No. S3-70 and examples of how major brick producers use Acme Steel Strapping.

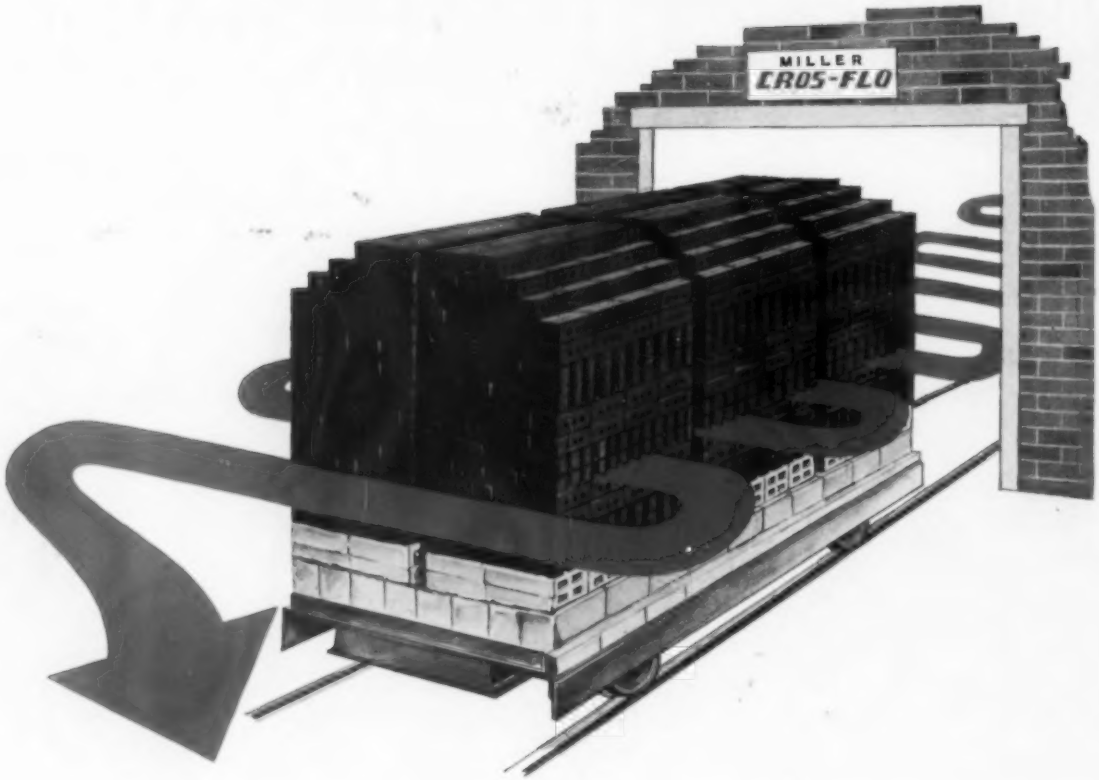
*Name*_____

*Title*_____

*Firm*_____

*Address*_____

*City*_____ *Zone*____ *State*_____



Uniform First Quality Ware Day After Day With . . . Miller Cros-Flo Tunnel Kiln

You get nearly 100% salable ware with uniform color and quality with Miller Cros-Flo Tunnel Kiln . . . controllable scientific cooling . . . Cros-Flo fans force heat and gases evenly through stacked ware. Miller Cros-Flo Tunnel Kilns make use of all usable heat in drying, firing, cooling . . . unbelievably low fuel cost per thousand brick. Miller engineers design and erect Cros-Flo Tunnel Kilns after a scientific analysis of your material and operational demands . . . Write today for information . . . no obligation.

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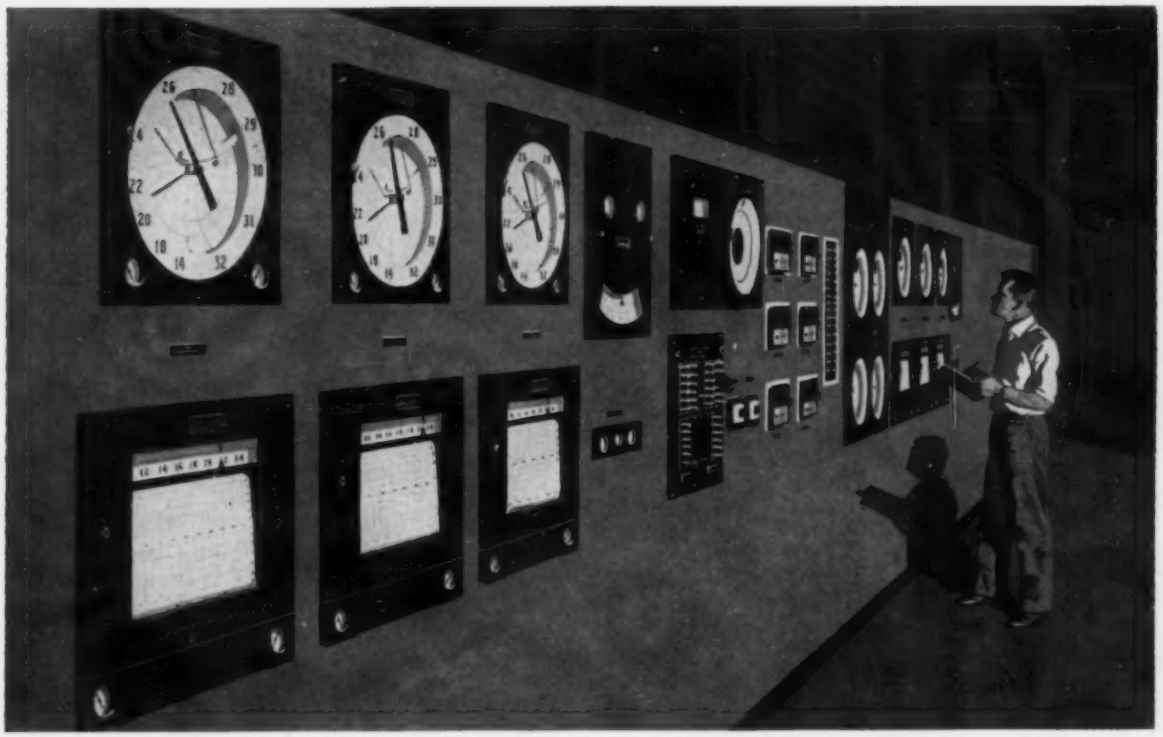
Circle Service No. 17

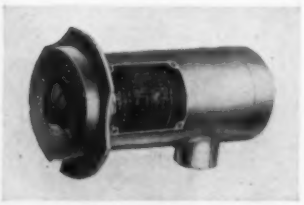


In the Honeywell control system, two *ElectroniK* recorder-controllers regulate temperature in each of three zones of four kilns. A circular chart recorder-controller is actuated by a *Radiamatic* radiation pyrometer sighted on a closed-end sighting tube in the combustion chamber. Below each circular chart instrument on the panel is a thermocouple-actuated *ElectroniK* strip chart recorder which measures temperature of the kiln ware space and resets the control index of the circular chart instrument. Flow of gas to burners is controlled by a Honeywell pneumatic valve positioner.

Kohler guards quality with Honeywell kiln controls at modern new plant

The vitreous plumbing ware plant of Kohler Co. at Spartanburg, S. C., incorporates the latest techniques and processes to keep quality high.

The new plant has four Swindell-Dressler gas-fired muffle tunnel kilns, each 400 feet long. On the present operating schedule a single pass through a kiln takes about two days. Honeywell instrumentation supplies automatic, ultra-precise temperature control in the kilns' firing zones. These controls keep product quality uniform.



Radiamatic radiation detector responds to 98% of any temperature change within two seconds, and is automatically compensated for ambient temperature changes.

Honeywell instrumentation serves the ceramic industry in many ways, bringing important day-to-day benefits wherever applied. Whatever your product or process, your nearby Honeywell field engineer can give you valuable help in gaining the advantages of automatic control. Call him today . . . he's as near as your phone.

MINNEAPOLIS-HONEYWELL, Wayne and Windrim Avenues, Philadelphia 44, Pa.—In Canada, Honeywell Controls, Ltd., Toronto 17, Ontario.

Honeywell

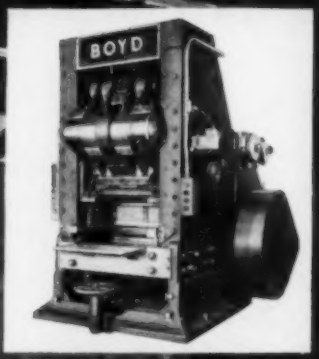
First in Control

SINCE 1885

75th YEAR — PIONEERING THE FUTURE

Circle Service No. 18

BOYD PRESS IS BASIC / for coke oven refractories



Coke being pushed at Granite City Steel Company

MODEL Y delivers power and density for larger brick . . . more intricate shapes

With coke pushing on the increase, more and more refractory producers are relying on the Model Y Boyd Press.

This big, heavy duty press is especially built to deliver the power and pressures needed to meet increased demand for bigger, deeper coke oven brick. A 12″ deep cavity and the big 37″ x 21″ mold opening gives you increased latitude for special shapes and/or increased output per stroke.

Why not investigate how a *step up* to Model Y can give you the increased density, resistance to spalling and the bigger coke oven brick that your customers are looking for? Write for details.

INTERESTED IN TAR-BONDED?

If you have a Boyd Press or require one to serve this growing market . . . let experienced CB&W engineers show you how to make the most effective use of your press.

Circle Service No. 19

BOYD POWER PRESS

CHISHOLM, BOYD & WHITE COMPANY

SUBSIDIARY OF WEHR STEEL COMPANY

610 W. 57th STREET • CHICAGO 21, ILLINOIS

A Superior Car Top-

made from a superior raw material!

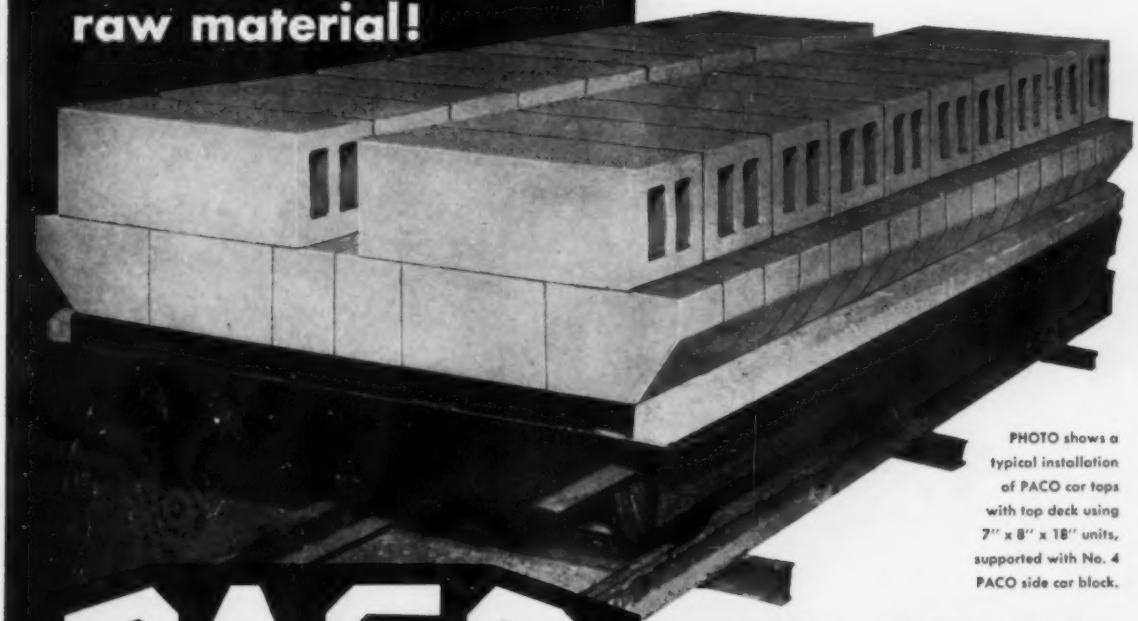


PHOTO shows a typical installation of PACO car tops with top deck using 7" x 8" x 18" units, supported with No. 4 PACO side car block.

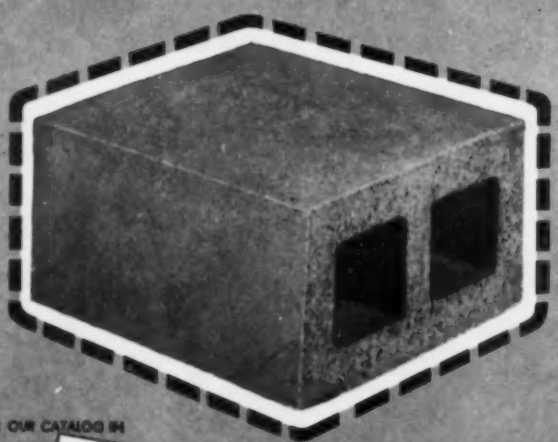
PACO CAR TOPS

are made from the mineral pyrophyllite!

Only PACO car tops are made from the mineral pyrophyllite. This is important because it can reduce your car top replacement costs by as much as 50%!

PACO car tops are stronger and highly resistant to thermal shock and hot load deformation. They do not soften below their actual fusion point. And, because PACO car tops are cored, the load heats faster and gases are more evenly distributed. The result is better, more efficient production — at less cost!

There is a PACO engineer as close as your telephone — or write for complete information!



SEE OUR CATALOG IN Ceramic data book

NORTH STATE PYROPHYLLITE CO.

INCORPORATED

Greensboro, North Carolina • Telephone CYpress 9-1441

OTHER PACO PRODUCTS INCLUDE: ✱ High Temp. Cement ✱ Fire Brick ✱ Heatzone ✱ Retort Cement ✱ Blow Off Tile ✱ Side Car Brick ✱ Ladle Mix ✱ Rear Arch Tile ✱ Plastic Cupola Linings ✱ Cupola Blocks

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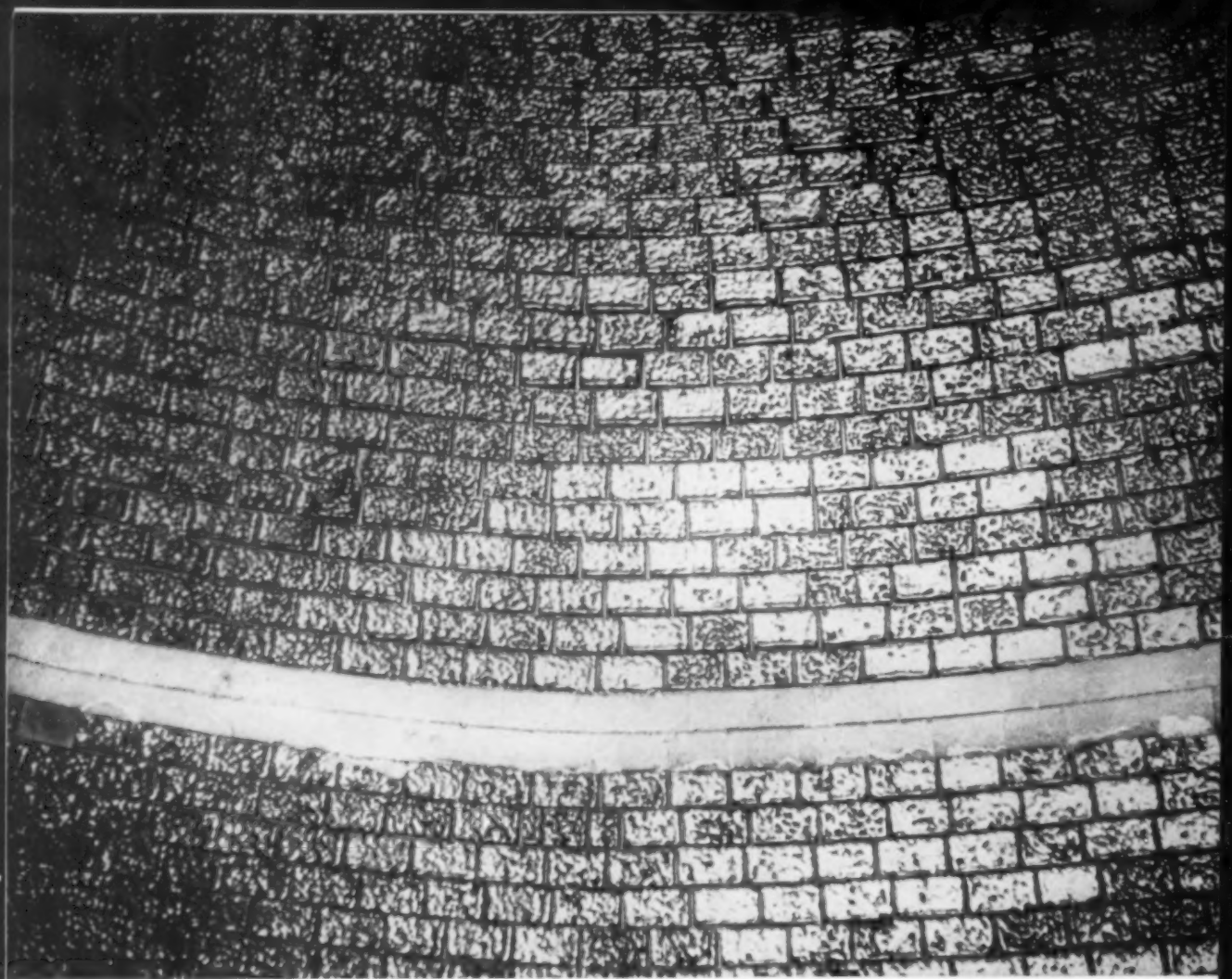


Who says there is no difference between insulating firebrick? This unretouched photograph shows two courses of B&W IFB in a salt glaze kiln crown built of competitive insulating firebrick. See how the competitive IFB have glazed after only five burns—clear proof there is no "or equal" for B&W Insulating Firebrick.

B&W

THE BABCOCK & WILCOX COMPANY

REFRACTORIES DIVISION

R639

B&W Firebrick, Insulating Firebrick, and Refractory Castables, Plastics, Ramming Mixes, Mortars, and Ceramic Fiber.

Circle Service No. 16

MISSISSIPPI BRICKMAKER SPEEDS PRODUCTION WITH ADDITIVE-A®!

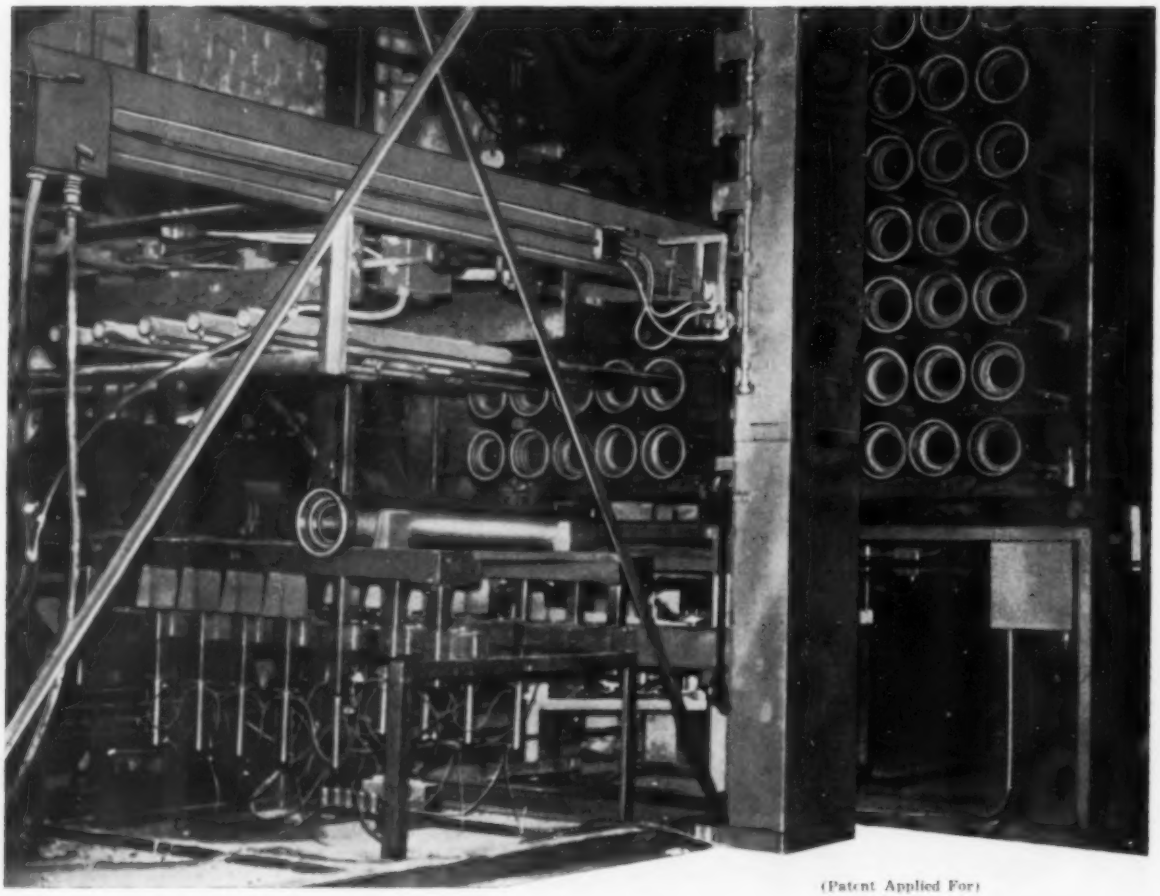
HATTIESBURG, MISSISSIPPI—"Hattiesburg Brick Works was the first plant in the state to adopt the full-time use of Additive-A clay conditioner," says vice-president, A. G. Collins. "Additive-A has shown excellent results in speeded-up production, increased green strength and decreased dryer loss. It helps us to make a finished product we are extremely proud to show our customers."

For descriptive folder on Additive-A, write to:
Chemical Products, Department No. BCR-70
Kimberly-Clark Corporation,
Neenah, Wisconsin

Kimberly-Clark Corporation Contributing Associate S C P I

Circle Service No. 22

Pearne and Lacy
AUTOMATIC RACK LOADER



(Patent Applied For)

The automatic sequence of operations provide for a continuing flow of pipe from the finishing station to the racks.
Pipe rolls direct from the finishing station to the indexer where it is picked up and inserted into the rack tray. Racks are automatically positioned for pick-up by the trucker. No interruptions in the operation waiting for the trucker. The complete loading operation is automatic except for the trucking. Rack loader is adaptable for all size of pipe handled horizontally. Specially designed light weight racks and trays are also available.

Write for complete operation details

Write for details on the many new labor saving features in automatic handling and finishing equipment.

Engineers and Manufacturers of Automatic Handling and Finishing Equipment for the Ceramic Industry.

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Eastern Representative
Dwight B. Hendryx, 6621 Darlington Rd., Pittsburgh, Pa.

PEARNE AND LACY INC. MACHINE COMPANY

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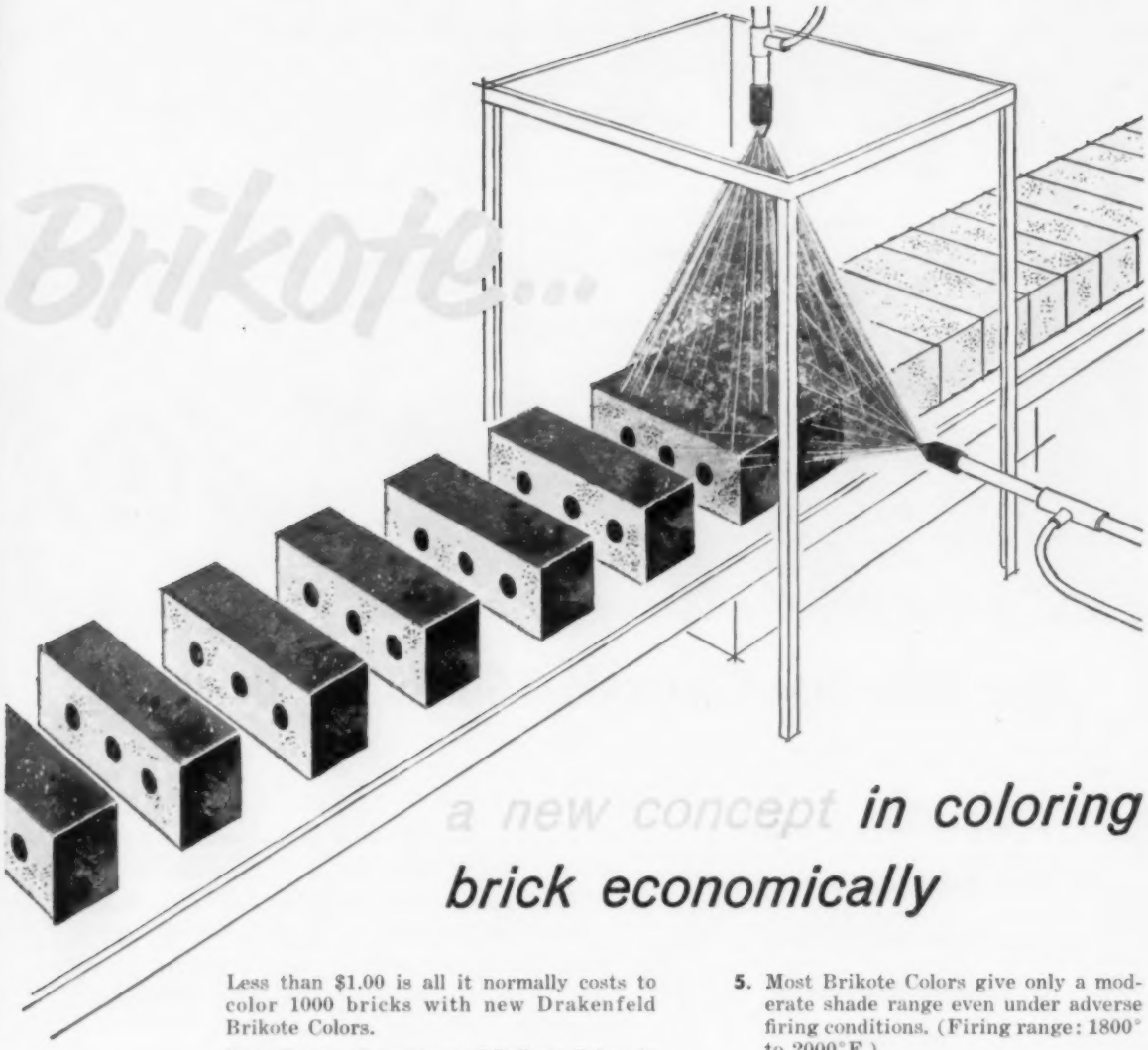

Brikote... a new concept in coloring brick economically

Less than $1.00 is all it normally costs to color 1000 bricks with new Drakenfeld Brikote Colors.

The all-around economy of Brikote Colors is due to these important characteristics:

1. Exceptional opacity and coverage.
2. A very thin coat is adequate and does not alter the brick texture.
3. The colors suspend readily in water to insure even dispersal when sprayed. They are supplied in wet form, ready to spray.
4. Coated brick may be face set and fired immediately without danger of sticking.
5. Most Brikote Colors give only a moderate shade range even under adverse firing conditions. (Firing range: 1800° to 2000°F.)
6. A blend of various colored brick can be run by simply changing the color intermittently at the spray machine. With a proper spray gun battery setup, such blending operations do not hamper production speed.

Brikote Colors in traditional brick colors are augmented by new shades in the complete line. Matches are also available for manganese flash and zinc flash. Write for complete information or ask for on-the-spot cooperation from one of our field engineers.

CALL ON Drakenfeld

YOUR PARTNER IN SOLVING COLOR PROBLEMS

B. F. DRAKENFELD & CO., INC.

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Factory and Research Center: **Washington, Pa.**

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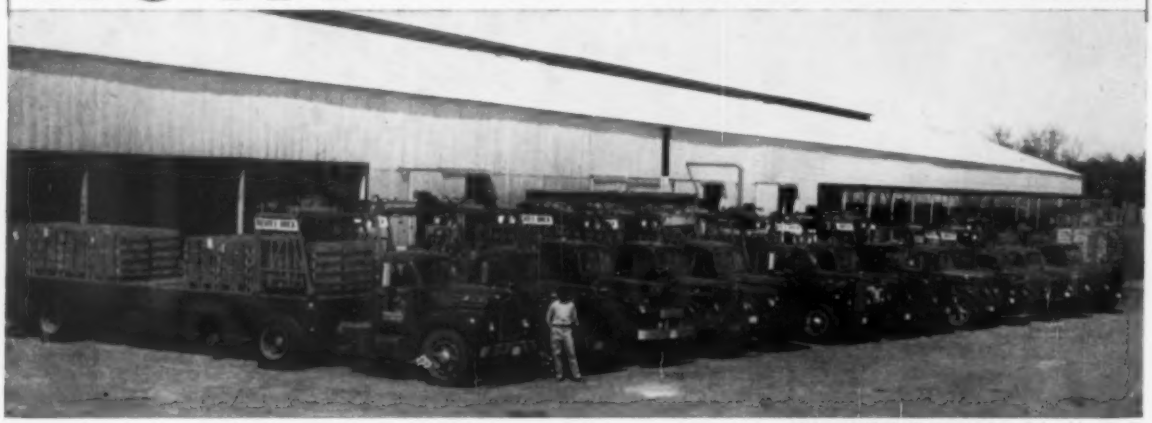
BRAUN-KNECHT-HEIMANN COMPANY, 1400 Sixteenth Street, SAN FRANCISCO 19, California, Phone: HEmlock 1-8800

Circle Service No. 24

NOW! 30 SUPERLITE unloaders Do the Job for Richland Shale Products



Richland Shale Products Co., Columbia, S. C.

Fast-Effortless-Economical SUPERLITE Unloading

- *Save Time and Labor*
- *Reduce Your Truck Fleet*
- *Lowest Initial Cost*
- *Speedy Deliveries*
- *Low Breakage*

The Proof is in the trying

Write or Call for Full Information

There's no place in a modern operation for the wasteful inefficiency of hand unloading, or even hand-operated unloading. With SUPERLITE UNLOADERS, you actually cut your delivery time in half. That means twice as many deliveries in one day—each man and each truck doubles efficiency. SUPERLITES handle gently, too. OVER 500 UNITS NOW IN USE IN THE CLAY PRODUCTS INDUSTRIES HAVE PROVEN SUPERLITES UNDER ALL CONDITIONS. They can be used on any flat bed or trailer truck, regardless of length. To slash your delivery costs by 50% or more, contact us at once!

BUILDERS EQUIPMENT COMPANY

P.O. BOX 7143
PHOENIX, ARIZONA
Telephone Numbers:
·YEllowstone 7-4741
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Use this valuable service to obtain complete information about the many products available to you. Send us one card now and save the second card for later use.

Brick & Clay Record

5 So. Wabash Ave.

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2	14	26	38	50	62	74	86	98	110	122	134	146	158	170	182
3	15	27	39	51	63	75	87	99	111	123	135	147	159	171	183
4	16	28	40	52	64	76	88	100	112	124	136	148	160	172	184
5	17	29	41	53	65	77	89	101	113	125	137	149	161	173	185
6	18	30	42	54	66	78	90	102	114	126	138	150	162	174	
7	19	31	43	55	67	79	91	103	115	127	139	151	163	175	
8	20	32	44	56	68	80	92	104	116	128	140	152	164	176	
9	21	33	45	57	69	81	93	105	117	129	141	153	165	177	
10	22	34	46	58	70	82	94	106	118	130	142	154	166	178	
11	23	35	47	59	71	83	95	107	119	131	143	155	167	179	
12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	

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3	15	27	39	51	63	75	87	99	111	123	135	147	159	171	183
4	16	28	40	52	64	76	88	100	112	124	136	148	160	172	184
5	17	29	41	53	65	77	89	101	113	125	137	149	161	173	185
6	18	30	42	54	66	78	90	102	114	126	138	150	162	174	
7	19	31	43	55	67	79	91	103	115	127	139	151	163	175	
8	20	32	44	56	68	80	92	104	116	128	140	152	164	176	
9	21	33	45	57	69	81	93	105	117	129	141	153	165	177	
10	22	34	46	58	70	82	94	106	118	130	142	154	166	178	
11	23	35	47	59	71	83	95	107	119	131	143	155	167	179	
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Use this valuable service to obtain complete information about the many products available to you. Send us one card now and save the second card for later use.

Brick & Clay Record
5 So. Wabash Ave.
Chicago 3, Illinois

New H-30 PAYLOADER®

a completely new unit with four-wheel drive

This tractor-shovel is the smallest "PAYLOADER" ever built with 4-wheel drive. In spite of its compact size and modest price, it has the latest improved features and refinements of larger "PAYLOADER" units, and many performance advantages not found in any other machine.

Four-Wheel Brakes: Powerful hydraulic type, and sealed to keep out dust and dirt.

Full Power-Shift Transmission plus torque-converter: Three speed ranges in each direction. All shifts in either direction can be made "on-the-go" with a flick of the fingers — no foot clutching.

Operator Visibility and Safety: New slope-down front end lets operator see bucket-loading action. All moving members are removed from operator's contact. He gets on and off safely with a fixed ladder and hand rails.

Closed Pressure-controlled Hydraulic System: Oil reservoir is closed and pressurized to exclude airborne dirt and dust — includes a cartridge type oil filter and fine-mesh strainer.

Positive Oil Cooling: Separate fan-cooled oil-to-air radiator assures positive cooling of transmission and torque-converter oil.

Maximum Accessibility: Fuel tank and transmission can be checked and filled from ground level. Easy access to battery, engine and other necessary points.

Your Hough Distributor is ready to give you data on this H-30 or any of the other "PAYLOADER" sizes from 2,000 to 12,000 lb. operating capacity. There's a model to meet your bulk material handling needs, indoors or outdoors. He also has complete service and parts facilities, backed by factory service personnel, to keep your "PAYLOADER" investment profitable.

HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER and PAY are registered trademark names of The Frank G. Hough Co., Libertyville, Ill.

77½ H.P. — 1 cu. yd. bucket . . . 3,000 lb. operating capacity

more power, more reach and more dumping height than any comparable machine

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

THE FRANK G. HOUGH CO.
753 Sunnyside Ave., Libertyville, Ill.

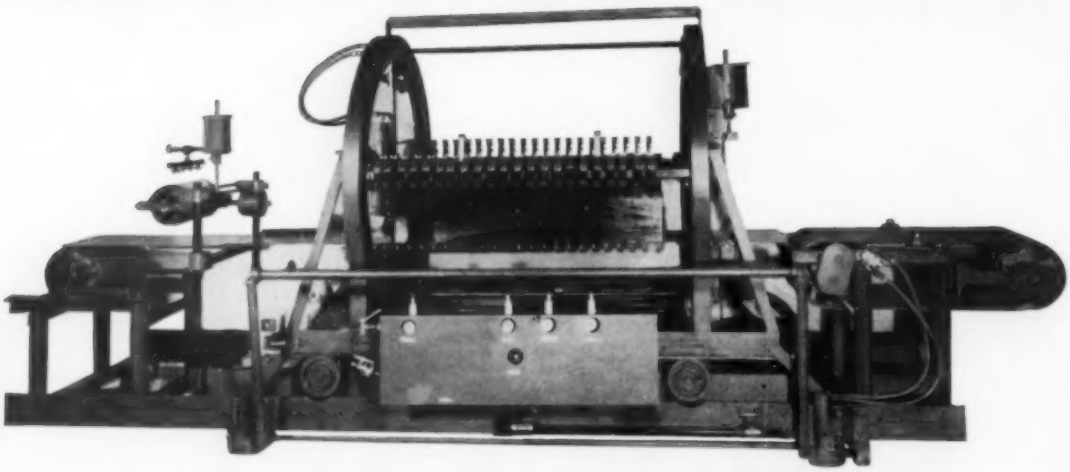
——— Send data on new H-30 "PAYLOADER"
——— Send data on other models and attachments

Name _____
Title _____
Company _____
Street _____
City _____ State _____

3-B-3

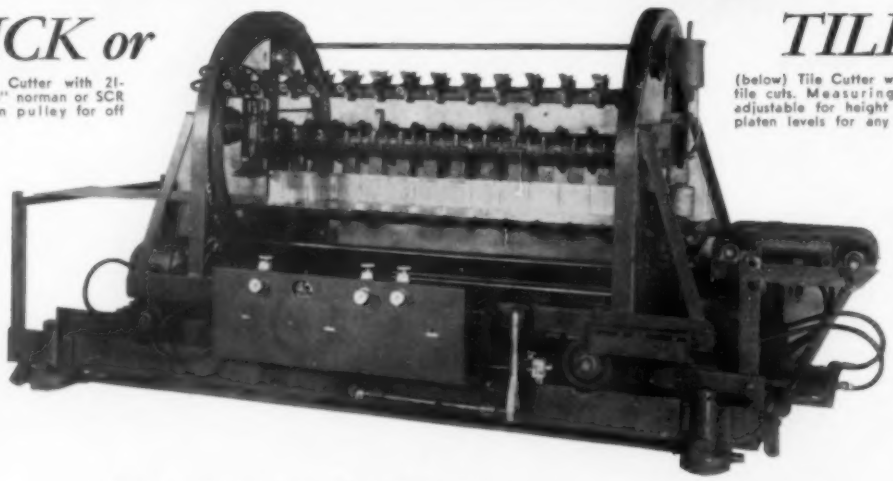
Circle Service No. 26

CHAMBERS MAKES THE CUTTERS FOR YOUR JOB!



BRICK or

(above) Brick Cutter with 21-brick platen—8" norman or SCR—with built-in pulley for off bearing belt.



TILE

(below) Tile Cutter with 12 5"-tile cuts. Measuring conveyor adjustable for height to match platen levels for any product.

CAPACITY IN CROSS SECTIONS

#32 & #33	14" x 14" 12" x 16" 8" x 18"	Green
#30 & #31	11" x 11" 9" x 13½"	Green

SPEED

Max. operating: 18 Cuts/Min.

CONTROL SYSTEM—Reciprocating motions are under air control, with tied-in air clutches to actuate rotary motion. All actuating cams are adjustable to fit any production problem, and the control valves in the main panel supply sensitive control adjustment during operation.

PLATENS—For either brick or tile, platens are built at any level to provide optimum wire cutting angles. The unique Chambers adjustable platen is ideally suited for refractories manufacture. All platens are quick-change units that do not disturb the alignment of the reel and gear assembly. In any model, platen lengths of 42", 54", or 68" can be supplied. Maximum number of brick: 27 per cut. Maximum length of tile: 5 12" pieces.

SPECIAL FEATURES—Measuring conveyor (Std., 3') can be built in any length to suit plant conditions. Off bearing belt tail pulley with take-up can be supplied with cutter (see Brick Cutter above). Lifting jack assembly can be motorized on order.

ADJUSTMENTS—One-point leveling and side adjustment guarantees perfect alignment with extruder. Measuring belt can be built with vertical adjustment if platens of different levels are used (see Tile Cutter above).

Write today for further details

SERVING YOUR INDUSTRY FOR OVER 100 YEARS

CHAMBERS BROTHERS CO.

1857 1960

52nd & Media Streets · PHILADELPHIA 31, PA.

Circle Service No. 15

How to select an industrial burner to meet your individual requirements

INSPIRATOR GAS BURNERS

(high pressure type)

Applications: Designed for use where natural or manufactured gas is available under *2 to 25 PSI.* These burners are economical at low cost for boilers, dryers, heaters, incinerators, industrial furnaces, kilns, petroleum processing and roasters.

Features: Gas energy used to inject combustion air; eliminates costly blower equipment. Adaptable to open port, sealed-in-wall or controlled secondary air firing. Offers flexibility, ease of control and efficient operation through simple, accurate construction. Adaptable for combustion safeguards.

Capacities: Nine sizes: from 80 to 24,000 cubic feet of gas per hour.

PORTABLE TYPE GAS BURNERS

Applications: Two models: one for intermittent, high output. The other is designed for moderate continuous operation. Applications: heating ladles, heating for bending or forming, firing small furnaces and portable benchwork.

Features: These burners are easily handled and weigh only 20 pounds each, including the low pressure gas burner, DFC motor blower and stand. Portable burners can be supplied with a rheostat for motor speed control.

Capacity: Maximum capacity is 500 cubic feet of 1,000 BTU natural gas per hour.

OIL BURNERS

(low pressure type)

Applications: to be used with light fuel oils and low pressure air, with blower, manually operated burners for use on dryers, heaters, industrial furnaces and roasters.

Features: Wide selection of fuel oils or distillates, from No. 1 to No. 4. Simplicity and flexibility through separate oil and air valves. Constant air volume and even burning by adjustable cone within burner body. Wide range of turndown.

Capacities: Five sizes vary from ½-gal. oil per hour under 10" water column, air pressure to 45-gal. oil per hour under 27"water column.

INSPIRATOR GAS BURNERS

(low pressure type)

Applications: This series supplements the high pressure inspirators where limited heat input per burner is required. Designed to burn all types of gas under low pressure. Applicable to dryers, industrial furnaces, preheaters and portable units.

Features: Inspirating effect of the throat induces sufficient combustion air. Simple, efficient, easy to control, eliminating costly blower equipment.

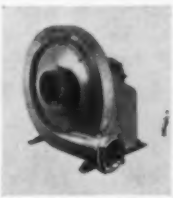
Capacities: Six sizes, from 4 to 420 cubic feet of gas per hour under pressures from 4" water column to 12" water column.

ATMOSPHERIC GAS BURNERS

Applications: Designed for any gaseous fuel under high draft conditions. Particularly where it is possible to build burner directly into brickwork. For use on dryers, incinerators, industrial furnaces and kilns.

Features: Flexible firing range, turn down ratio of 20 to 1; simple control by gas firing cock and revolving air shutter; excellent flame retention with fins molded into nozzle. Low installation and maintenance costs.

Capacities: Five sizes: from 150 to 10,000 cubic ft. of 1,000 BTU gas per hour at pressures over 1 PSI and high draft (.05" to .15" water column).



CENTRIFUGAL MOTOR BLOWERS

Applications: The low pressure double inlet and the 16-oz. positive pressure single inlet series are used as source of combustion air for industrial burner systems.

Features: Low pressure blowers meet needs for smooth, quiet, inexpensive operation. 16-oz. positive pressure blowers create high discharge pressure, needed for a large turn down ratio and high efficiency.

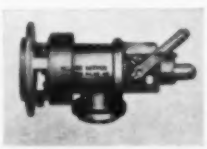
Capacities: Low pressure series range from 100 CFM to 800 CFM. 16-oz. blowers range from 90 CFM to 1100 CFM.

BLAST TYPE GAS BURNERS

Applications: For use with manufactured or low pressure gas, with air supplied by a blower. Ideal for dryers, industrial furnaces, test furnaces and as preheaters.

Features: Low priced, manually controlled, blast type burner. Consists of gas-air mixer, blast air valve, cast iron nozzle and indicating cock. Mixer uses air from blower to entrain gas for delivery to burner.

Capacities: Six sizes, capable of burning from 280 cubic feet of 1,000 BTU gas under 2" water column pressure to 6,400 cubic feet of 1,000 BTU gas under 4" water column pressure.



AUTO-RATIO OIL BURNERS

Applications: For use with heavy or light fuel oils with combustion air supplied by a blower. Applications: dryers, heaters, industrial furnaces, kilns, roasters.

Features: Single valve *automatically* proportions low pressure oil and air for combustion over its entire range. Wide selection of fuels including heavy preheated oil. Turn down ratios of 20 to 1 on larger sizes; 10 to 1 on smaller sizes.

Capacities: Four sizes: from 1.3 gallons of oil per hour under 10 ounces air pressure, to 25 gallons of oil per hour under 48 ounces air pressure.

Denver Fire Clay Company

3033 BLAKE STREET, DENVER 17, COLORADO

Please send me further information on DFC Industrial burners:

NAME:.....

COMPANY:.....

ADDRESS:.....

CITY.....STATE.....

Circle Service No. 28

NEW PRODUCTS

Model of 8-Shot Stud Gun

An advanced model of the Columbia-matic "8" has been announced by The Columbia-matic "8" Corporation. The new model Columbia-matic "8" incorporates full interchangeability of all parts for "on-the-job" servicing; the new design permits the eight-shot cylinder to use longer nails and studs, now accommodating fasteners up to 3 5/16" overall.

Designated the "Mark II", the new model fastener can be operated with two pre-loaded cylinders.

The Columbia Mills, Inc.

Circle Service No. 100

Elevating Scraper

An, efficient, large-capacity self-loading tractor-scraper combination is being introduced to the market. Built essentially for jobs where self-loading is mandatory, the Elevating Scraper, 10 cubic yard Model 10E2, will load in surprisingly short time under moderately difficult conditions, because of the exclusive "chopping action" of the slat-type elevator. This elevator, driven by LeTourneau-Westinghouse motors, chops and pulverizes the material and carries it rapidly off the scraper blade high into the bowl, to give this scraper its high dirt-moving capacity. This soil-pulverizing action makes spreading easy and uniform and eliminates the need for a separate finishing tool.

Hancock Elevating Scraper.

Circle Service No. 101

Compactor

The Muller Masher, a vibratory compactor. This equipment is available with three sizes of tamping pads: the M12, the M18 and the M24 with 12", 18" and 24" pads respectively. The machine is self propelled and is designed for one-man operation. It is a heavy duty compactor, powered by a heavy duty engine with Stellite valve.

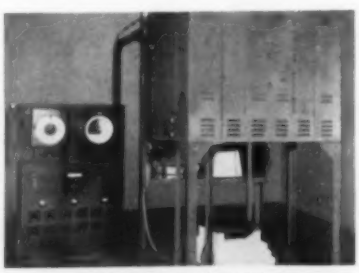
Muller Machinery Co., Inc.

Circle Service No. 102

Non-metallic Resistor Electric Furnace

Plus-or-minus 2° accuracy up to 2700°F. can be expected from this non-metallic resistor electric furnace. Firing is rapidly accomplished into the 2000°—2700°F. range, and cooling can be quickly accomplished by an external sealed heat exchanger to follow a program controller. Elevator operation can be either mechanical or hydraulic. This type of atmosphere furnace is adaptable to many uses, such as crystal growing and firing of ferrites, titanates and similar electronic ceramic parts. Model pictured is NMR-20E, with a setting space 20" x 26" x 20"; model NMR-12E has a setting space 12" x 16" x 12". Both models are available sealed for atmosphere operation.

Harrop Precision Furnace Co.



Circle Service No. 103

Recorder

A combination pressure and temperature recorder in the 8000 Series. This attractively styled, electronic potentiometer recorder is completely self-contained and uses a constant voltage source instead of the conventional standard cell for standardization. The new unit will record one or more points of pressure and up to twenty-three points of temperature.

Wheelco Instruments Div. of Barber-Colman Co.

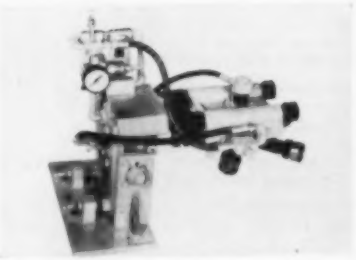
Circle Service No. 104

Diesel Walking Dragline

The Diesel Walking Dragline built especially for the Hoffman Coal Co. This machine is powered by twin V-6 Diesel engines—the only Diesel engine that is engineered and developed exclusively for dragline machines. The 732 carries a 200 foot boom and is swinging a 16 cubic yard dragline bucket. This bucket introduces a completely new concept in dragline digging—an all-purpose, all depth, with uniform digging ability, dragline bucket.

Page Engineering Company.

Circle Service No. 105



Conveyor Lubricator

A floor type heavy duty Conveyor Lubricator automatically injects oil or grease in wheel bearings in trucks, dollies and pallets used with floor conveyors. This special model #152 was designed for use in steel mills, where it has performed satisfactorily under adverse circumstances involving extreme heat and dirt conditions for over two years. It is now available as a standard model for use in quarries, foundries, for coal handling, mining and other similar heavy duty applications.

Olsen Manufacturing Company.

Circle Service No. 106

New Products, Con't . . .

Vibrating Screen

A leading producer of vibrating screening machinery has announced a new line of vibrating screens designed to meet a growing need for rugged, durable screening equipment at an economical cost. The new line of screens, called Ty-Rocket, is supplied without a supporting base, and has a modular design, so that several different sizes can be assembled form standard components. The units screen materials such as coal, ores, limestone, sand and gravel in either dry or wet screening, or de-watering operations.

The Ty-Rocket screen is vibrated by an off-balance shaft, supported in two bearings, which imparts a high speed, circle-throw motion to the screening surface.

The Griswold-Eshleman Company.

Circle Service No. 107

Feeders Moves, Sorts Materials

You can now move and sort materials in one operation using a vibrating screen feeder. These versatile feeders and conveyors separate mixed loads of solid materials, or solids and liquids, and move them to collection points and deposit them in separate containers.

This feeder moves and separates sand from gravel. A Cleveland pneumatic vibrating drive located under the feeder vibrates both the lower and the upper tray which is a porous steel screen. Rapid vibratory action sifts the sand from the gravel in the upper tray. The same action moves both sand and gravel along the trays to individual bins.

The Wellman Company

Circle Service No. 108

Tractor Dozer

A number of design changes in the "Michigan" Model 180 tractor-dozer aimed at increasing machine productivity have been announced. The diesel-powered, 162 horsepower unit, smallest in the Michigan line of rubber-tired tractor dozers, now has all features standard on two larger units of this type.

Clark Equipment Co.

Circle Service No. 109

New Compact Space Saver Drive for Grinding Mills

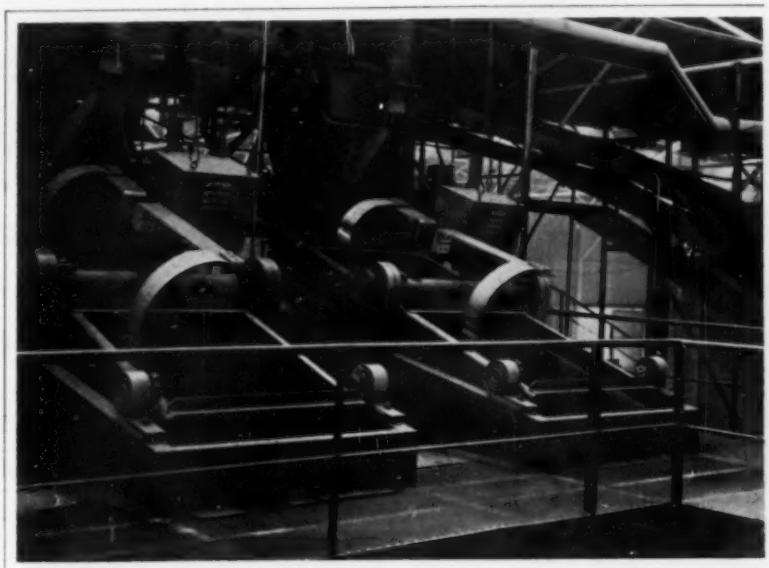
The Twinducer gear drive is a new compact space saver drive arrangement for grinding mills. The Twinducer drive efficiently harnesses the power of two synchronous motors located on the mill side of the drive. The electrical load is distributed through an angular rotor shift of one of the motors. Once the load is balanced and the rotor locked in place, no further adjustment is needed nor are floating gear or pinions required.

Allis-Chalmers Manufacturing Co.

Circle Service No. 110

Changes of Address

If you're due to change your address, be sure to avoid missing an issue of B&CR. Please notify us of your new address at least six weeks in advance of moving date. Write: BRICK & CLAY RECORD, 5 South Wabash Ave. Chicago 3, Ill. Be sure to give both old and new address, zone number, and your name.



when performance counts...

specify Overstrom Electrically-Heated Vibrating Screens. They not only *act* the part of key performers in this outstanding clay products plant — they *look* the part!

Unitized oil-bath lubricated vibrator cartridges mean long life and easy maintenance. Custom-built spiral suspension springs give sharper action to the large-amplitude high-speed vibration. Step-deck construction (optional) overturns the oversize bed midway in its travel, delivering *more fines* through. Flatter slope means high efficiency/more production, with less return to grinders.

Want to cash in on *Overstrom* performance? Write for recommendations. Include a description of present grinding and screening equipment, limiting screen size, and average production rate. You'll receive a prompt answer with built-in experience.

OVERSTROM VIBRATING SCREENS

OVERSTROM & SONS, INC • 2213 West Mission Rd • Alhambra, California

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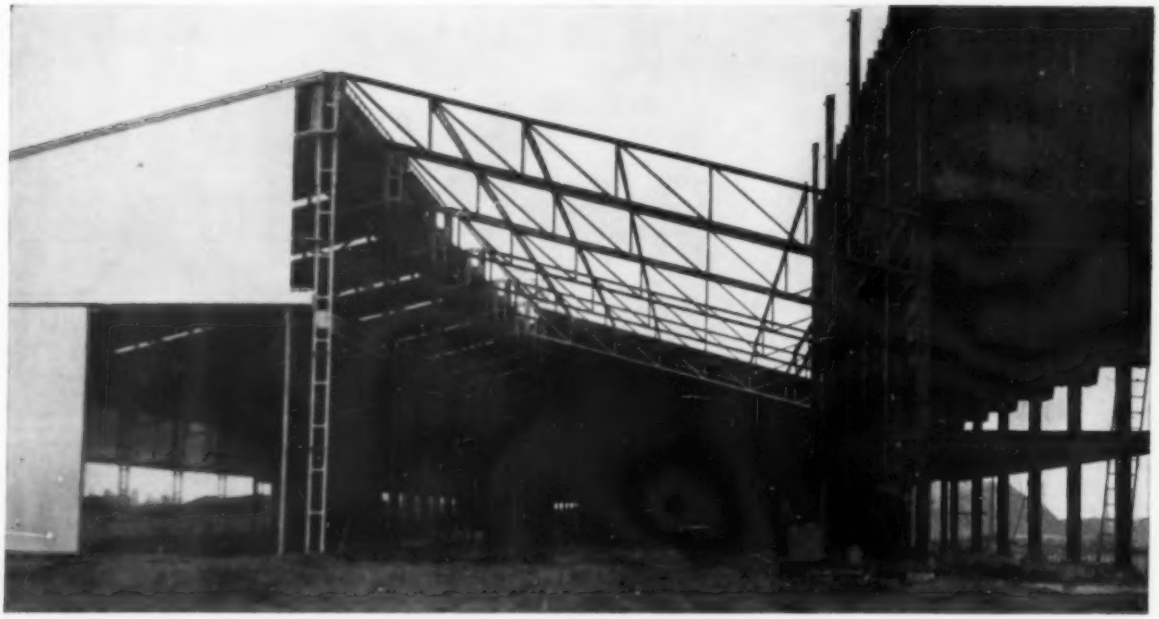
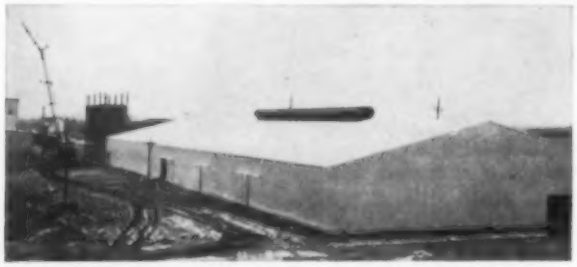
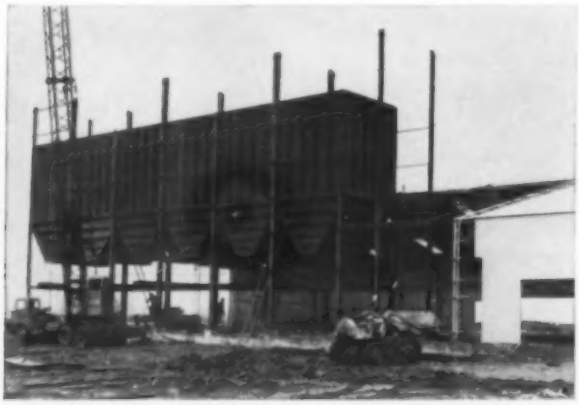


Illinois Clay Products new plant framed with Swiss-Lok Tubular Construction



The new Illinois Clay Products Co. plant in Joliet, Ill. is enclosed with corrugated aluminum roofing and siding. The plant and manufacturing facilities were designed and engineered by Dwight D. Hendryx & Associates, Pittsburgh.



Six clay bins, of 500 tons capacity each, also were fabricated by Swiss Fabricating, Inc. They are contiguous to the "bin-building" section of the new plant, which will produce fire brick, ladle brick and general refractories.

A five-man crew with a crane erected the framing for this 100′ x 460′ new plant in only three days. This surprising erection speed is normal where Swiss-Lok tubular framing is employed. The members, prefabricated with economical production-line technique, are simply raised and locked snugly, securely and rigidly in place by the patented Swiss-Lok connections.

Eliminated at the construction site are welding, cutting and riveting, together with the skilled workers and field equipment required in conventional steel frame erection. The saving in man-hours and a multitude of other cost items provides unprecedented construction economies that more than offset the lower material cost of conventional structural members.

Structural strength is in accord with A.I.S.C. standards with one-third less steel. Swiss-Lok tubular building frames offer these other additional, real values:

- More head-room, because trusses parallel the roof slope.
- Rigid and self-supporting without dependence on roof and wall construction.
- Suited to all kinds of wall or roof construction and to all types of building.
- Tubular shape offers minimum "shelf" surface for accumulation of dust.

Write for literature with complete description of the Swiss-Lok system of tubular framing, or send structural specifications for a quotation to:

SWISS FABRICATING, INC.
(Main Office and Plant) Pittsburgh 2, Pa.
Telephone WEllington 1-2646

Circle Service No. 30

LEADING CLAY JOURNAL OF THE WORLD
A CAHNERS PUBLICATION

Brick & Clay RECORD

JULY, 1960

Vol. 137, No. 1

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now in 68th year.

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Southern: John M. Printup, 121 S. E. First St., Miami, Fla., Phone: Franklin 9-2668

Dallas: R. W. "Whit" Jones, John Printup & Assoc., 2607 Millmar Dr., Dallas 28 Tex. Phone: DAvis 1-0898

California: Wentworth Green Company 439 S. Western Ave., Los Angeles 5, Phone Dunkirk 7-8135; (A. S. Babcock) 605 Market St., San Francisco 5, Phone YUkon 2-3954

Pacific Northwest: Frank J. McHugh, Jr., 520 S.W. 6th Ave., Portland 4, Oregon. Phone CApital 6-2561. Also Seattle

CONTRACTS: Formal acceptance made only in Chicago.

BUSINESS

M. J. Skodon, *Vice President in Charge of Manufacturing*
R. H. Lash, *Exec. Dir. of Circulation*
H. G. Love, *Circulation Director*
*Ceramic Engineering Staff

EDITORIAL

It's Up to the Dealer Too.

Just the other day we received a distress call for brick. A contractor building a school needed 160 red glazed brick to complete a job and could not find a source for the brick.

His own dealer-supplier was completely out of stock and with our help we called practically every dealer in this area—no red glazed brick.

We'll admit that such a highly specialized product is not generally kept in a dealer's stock and that such brick are purchased only when needed for a job. But one would think that somewhere in as large a community as Chicago there would be a stock of the brick.

It opens up the question of dealer service to his customer and to his supplier. Should a dealer be required to carry a reasonable stock of his manufacturer's products? Should there be some agreement between the two about stocking fast moving items and not stocking the slow movers?

The contractor and ultimate customer are both hurt in such a case as occurred above. The impression is then made that this industry has a poor distribution system—that it is not too concerned with the ultimate customer.

Everyone comes off with a bad taste—the customer who doesn't get his job done when he expects it—the contractor who cannot depend on the dealer who promised to supply him—the dealer who is in a dilemma because he doesn't know what to stock and how much—the manufacturer who gets a black eye because he doesn't seem to show concern.

Yet all may be partly at fault, the customer may be reaching out into left field for a color or design that can't be had readily; the contractor is to blame for underestimating his requirements; the dealer, of course, should have had the brick—that's his business; and the manufacturer should insist on stocks being maintained in markets where he expects to do business.

The whole situation is like a ballgame without a ball.

Here is a realm where some policy might be established. It's between the dealer and the manufacturer. Pick out the best seller and supply them. Then the manufacturer should push those stock items among the architects and contractors.

Service will win friends and the dealer should help too.

J. J. Svec

Executive Editor

Supreme Court, Congress Deal Depletion Setback

Special Report

Cannelton Case Ruling holds that there is a market for raw clay in Indiana. Congress places depletion allowance on value of clay before the pug mill. Industry awaits Internal Revenue Bureau formulae for making new law effective Dec. 31, 1960. Cherokee or Merry Brothers cases not specifically overruled but court does not approve of their holdings.

Through a surprise move in the Senate Saturday, June 25 and the Supreme Court decision Monday, June 27th, the Treasury has at long last succeeded in getting its interpretation of percentage depletion on brick and tile clay and fire clay used for brick or tile.

On Saturday, June 18, 1960, without any knowledge of the leadership of the Senate or of the Chairman of the Finance Committee, Senator Byrd of Virginia, a group of so-called "anti-depletion" Senators headed by Senator Albert Gore of Tennessee and aided by Senator Lausche of Ohio, Senator Douglas of Illinois, Senator Proxmire of Wisconsin, got control of the Senate floor during the debate on the Excise Tax Bill which had been reported by the Senate Finance Committee without any reference to depletion (which was in accordance with the understanding stated January 12 to the Congress by Congressman Wilbur Mills, Chairman of the House Ways and Means Committee, that no legislation on depletion would be considered during this session of Congress) and offered an amendment to change the method of computing depletion on brick and tile and fire clay as well as other minerals.

The debate went for several hours and of course involved all depletion including oil.

Technical Point Halts Debate

Senator Lyndon Johnson was finally able to get this surprise move stopped by a technical point that it was improper to amend the Finance Committee amendments being considered and the Gore amendment was defeated by this point 36 to 29.

Monday morning, June 20, 1960, when the Senate convened Senator Johnson arose and announced as follows:

"Mr. Johnson of Texas, Mr. President, on Saturday when this matter was discussed I followed with great interest and attention the argument advanced by the junior Senator from Tennessee. On several previous occasions the distinguished Secretary of the Treasury had in writing and orally explained to me that in his view such an amendment as is proposed would be desirable.

"In view of the statement made by the distinguished ranking minority member of the committee and the subsequent ruling of the Chair, namely, that the Gore amendment, if adopted, would restore approximately $50 million in revenues to the bill, but would take out some $700 million, I felt, after discussing the situation with the Senator from Tennessee that the better part of wisdom would be for him to offer his amendment as he is doing today.

Amendment is Agreeable

"I cannot conceive of any substantial opposition to his amendment. As early as 11 o'clock this morning I reviewed this amendment with the Secretary of the Treasury, and he said in effect that unless the Supreme Court dealt with the situation completely in the cases it is now considering, it would be necessary for Congress to act.

"I talked with the Senator from Tennessee, and I believe we, together with the minority leader, are in agreement that we should adopt the amendment. If its provisions are adequately covered by the Court's decision, then we have lost nothing.

We could improve it or amend it or eliminate it in conference. If the Court does not uphold the Government, then it not only would be very desirable, but also most of those who have studied the subject think it is very essential that language of this type be in the bill.

"I hope that the minority leader and the distinguished minority member of the Finance Committee, the ranking member, and the committee chairman will agree with the views I have expressed and will support the amendment."

Expect Supreme Court Decision

Mr. Dirksen of Illinois. Mr. President, "I was present at the conference this morning with the Secretary of the Treasury, and I concur in what the majority leader has said. There is some reason to believe that the Supreme Court may this week hand down its decision involving this subject, and therefore I think the conferences ought to be left quite free and their hands should not be tied by a hard and fast vote. Certainly our conferees would not be obdurate. The ranking Republican, the distinguished Senator from Delaware (Mr. Williams) will be our principal conferee from this side. It has been his hope that perhaps the amendment could be taken to conference without a yes-or-nay vote. That would improve the situation, for one thing, and leave the conferees in a position to deal with the subject after they have ascertained what the Court will do."

With the leadership of both parties and the Chairman of the Finance Committee agreeing, the Gore depletion amendment was passed 87-0 and went to conference. Immediately the SCPI Depletion Committee flew to Washington and made a strong effort to have the members of the House of Representatives stand firm against such an amendment and to carry out the commitment made January 12 that no depletion legislation would be enacted this session.

Pressure for Bill Passage

Great pressure was being put on the conferees to agree on the Excise Tax Bill due to the debt limitation section and so conference sessions were called for Thursday, June 23rd.

Members of the SCPI Depletion Committee, the Sewer Pipe Committee, other mineral groups all were in Washington working to eliminate the Gore amendment. The Treasury even submitted different wording for the amendment Senator Gore had used. Finally the attached wording was agreed upon, which

(1) removes "the first commercially marketable product rule" from the law.

(2) defines the processes to be considered mining for clay and includes only crushing, grinding and separating the mineral from waste.

(3) defines treatment process not considered as mining which affect clay by the words molding or shaping.

The effect of this is to place the value of the clay just before the pug mill as the base to compute the percentage depletion.

Since there is no readily ascertainable value at this point, the Treasury will issue some formula for computing this value.

While the amendment agreed on by the conferees does not state the effective date, the original Gore amendment stated December 31, 1960 and we suppose that the final law will contain that date. The conference committee report has been adopted by the House and Senate and signed by the President. The depletion provision becomes effective Dec. 31, 1960.

On Monday, June 27, 1960 the Supreme Court handed down the decision in the Cannelton case overruling the Court of Appeals and sending the case back for further proceedings.

The Supreme Court held, in effect, that there was a market for raw clay in Indiana and even though the Cannelton Company could not sell their raw clay profitably "fire clay and shale were commercially marketable".

In discussing ordinary treatment processes, the court discusses the difference between an integrated miner-manufacturer and just a miner and concludes that since there was a market for clay in the raw state, the miner-manufacturer should "be treated as if the operator were selling the mineral mined to himself for fabrication".

The Supreme Court does not specifically overrule the Cherokee or Merry Brother cases but states "we do not, however, indicate any approval of their holding".

What Next?

With the action of Congress placing the depletion allowance on the value of clay before the pug mill and the Supreme Court holding that there is a market for raw fire clay and differentiating between a miner and a miner-manufacturer, we now face the question of what procedures will be adopted by the Internal Revenue Bureau to make these rulings effective.

Each member of the depletion committee worked untiringly in the interest of all the members of the industry to overcome the tremendous opposition of the Treasury Department.

During these past few days, Chairman Boldrick and Kenneth Dunwody, ably aided by Attorney Frank Erwin of Austin, Texas, spent untold hours discussing this matter with the members of the conference. Many brick and tile manufacturers were contested and willingly supported the Committee with their own Senators or representatives.

Everyone is deeply disappointed in the outcome, but no stone was left unturned by these men to protect the industry. They are to be warmly congratulated for the fight they put up for 10 years to get and keep percentage depletion for the clay industry.

The long struggle for depletion has shown that the members of this industry (brick, tile, pipe, refractories, and aggregate) can work together in great harmony and cooperation. Even though the entire wishes of the industry have not been attained, a partial depletion compensation remains.

This solidarity in the industry should ready it for another fight and another fight and another fight which will no doubt be faced in the future.

Now that the cooperation spirit has been attained, it should be continued. Let the industry unite and stay together for in unity there is real strength as has been demonstrated in this depletion affair. The Editors

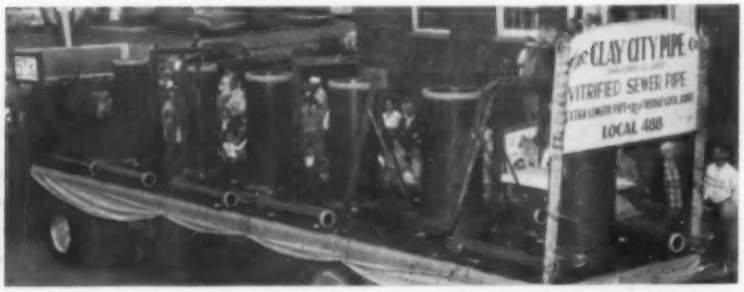
NEWS OF THE INDUSTRY

National Clay Week—1960

Pageant Celebrities—Miss Joyce Hinson, "Miss Clayland" of 1960, talks with Calvin Nicholls (center) of Gnadehutten, Ohio, master of ceremonies of the pageant, and G. A. Robinson, (right) president of the National Clay Pipe Manufacturers, Inc., Washington, D. C., who presented a $250 scholarship to her on behalf of the Clay Sewer Pipe Association of Columbus, Ohio.

National Clay Week Parade Winner—For the third consecutive year, a float entered by the Evans Pipe Co. of Uhrichsville, Ohio, won the Industrial Division Award in the Clay Week parade, one of the highlights of the 11th Annual National Clay Week program, held recently in the twin cities of Uhrichsville and Dennison, the industrial heart of Tuscarawas County.

Second place in the Industrial Division of the 11th annual National Clay Week parade was awarded the float entered by the Clay City Pipe Co. of Uhrichsville, Ohio.



Ferro's Refractories Div. Building Plant

The Refractories Division of Ferro Corporation will build a new $300,000 plant in the Los Angeles, California area it was announced recently by Elmer W. Beck, manager of the division. The new unit will manufacture a line of refractory specialty items now produced by the division's Louthan and Cesco plants in East Liverpool and Crooksville, Ohio, and will meet the rapidly-growing West Coast demand for these products. It is expected to go into operation later this year. The Ferro Refractories Division also maintains a plant in Tyler, Texas.

Continental Elects Treasurer

Robert W. Saum has been elected treasurer of Continental Clay Products Co. and appointed head of the production and purchasing department of United Clay Products Co. He succeeds Lilly Tyser who recently retired.

Gladding, McBean & Co., Los Angeles, Names Sales Manager For Architectural Products

The appointment of Owen L. McComas as general sales manager, architectural products division, Gladding, McBean & Co. has been announced by H. K. Swenerton, vice president.

McComas will be responsible for the management and direction of marketing and sales programs for all architectural products distributed by Gladding, McBean & Co. These include Hermosa Tile, unglazed ceramic tile, quarry tile, ceramic veneer, face brick, roof tile and solar screen.

Andrew B. Holstrom Retires

Andrew B. Holstrom has retired as vice president of Norton Company, Worcester, Mass.

Holmstrom started at Norton Company 41 years ago in the plants engineering department. In 1930 he was resident engineer in charge of construction at the company's Welwyn Gardens, England, plant. He was later general manager there.

News of the Industry . . .

Fred H. Thomas

Fred H. Thomas Joints NATCO

Fred H. Thomas has been named to the newly created post of New York district sales manager of Natco Corp., Pittsburgh.

He is former vice president in charge of sales for Hanley Company, Pittsburgh, with whom he was associated for 28 years. Prior to this he was general sales manager for the American Enameled Brick Co.

Dickey Plants Near Completion

Construction of the W. S. Dickey Clay Mfg. Co.'s all-new Birmingham-Bessemer plant in Alabama and expansion of its St. Louis, Missouri, plant are nearing completion.

In 1959, ground was broken for the first section of an ultra-modern clay pipe plant near Birmingham. Finishing touches are being applied to this section and the initial phases of production have started.

Pipe up to 12-inch diameter produced by this unit will be vitrified in one of the world's largest tunnel kilns.

A second unit, begun after fire destroyed the Dickey Birmingham plant last November, is well under way and will be completed late this summer. When the entire plant is in operation, a complete line of vitrified clay pipe will be produced in 4-through 36-inch diameters. In addition to pipe, the plant will produce numerous other related clay products.

Complete Canadian Tile Facade

An adhesive-bonded tile facade was completed recently in Calgary, Canada. Forty-two thousand square feet of ceramic tile facing was bonded to metal framed structural panels on the eight-story Alberta Wheat Pool Office Building with a special exterior type tile adhesive. Distinctive in design and appearance, this modern structure is 30% larger than any previous ceramic tile installation in North America. More than 7,200,000 individual tiles were used on the exterior panels. Great West Brick and Tile Ltd. of Calgary, subcontractors who installed the tiled panels, estimated their costs were reduced 20% by using the Miracle Adhesive "Thin-Set" Method.

Elect Maloney to Presidency

Joseph L. Maloney, Eastern District Sales Manager for the Natco Corp., Pittsburgh, Pa., has been elected President of the Clay Flue Lining Institute, and association of clay flue lining manufacturers, with plants and branches strategically located to serve the United States and Canada. He succeeds James L. Clough of the Evans Brick Co., Uhrichsville, Ohio.

Sewer Pipe Plant for Ocala, Florida

R. G. Varner Steel Products, Inc., of Pine Bluff, Arkansas, one of the nation's leading builders of brick and clay plants, has been awarded the contract to erect a giant 200,000 square foot sewer pipe plant in Ocala, Florida.

Name Behner Manager

Donald C. Behner has been named Cleveland sales manager of North American Refractories Co. of Cleveland, Ohio.

New Firm Linked With Solite

Purchase of a plant site in upstate New York and the formation of a new corporation to produce lightweight aggregate were announced recently by John W. Roberts, president of the Solite Co., Richmond, Va.

Emil Berra, Jr.

Appoint Berra to Post

Emil Berra, Jr., has been appointed to the St. Louis sales office of W. S. Dickey Clay Mfg. Co., it was announced recently by Mr. J. J. Steencken, General Manager of the firm's St. Louis plant.

He succeeds Mr. William F. Anger, who is retiring after 22 years with the company. Both men began their careers with Evans & Howard Sewer Pipe Company, which was purchased by Dickey in 1958.

Basic, Inc. Pushes Building Program

Efforts are being made at Basic Inc., to push two important construction projects to early completion this summer according to the *Basic Blast*, company house organ.

The brick plant expansion job at the Maple Grove plant is moving ahead on schedule, and when completed, should provide badly needed storage space. The chrome specialties plant at Bettsville is rapidly taking shape, which will soon permit the company to offer its customers more and new products.

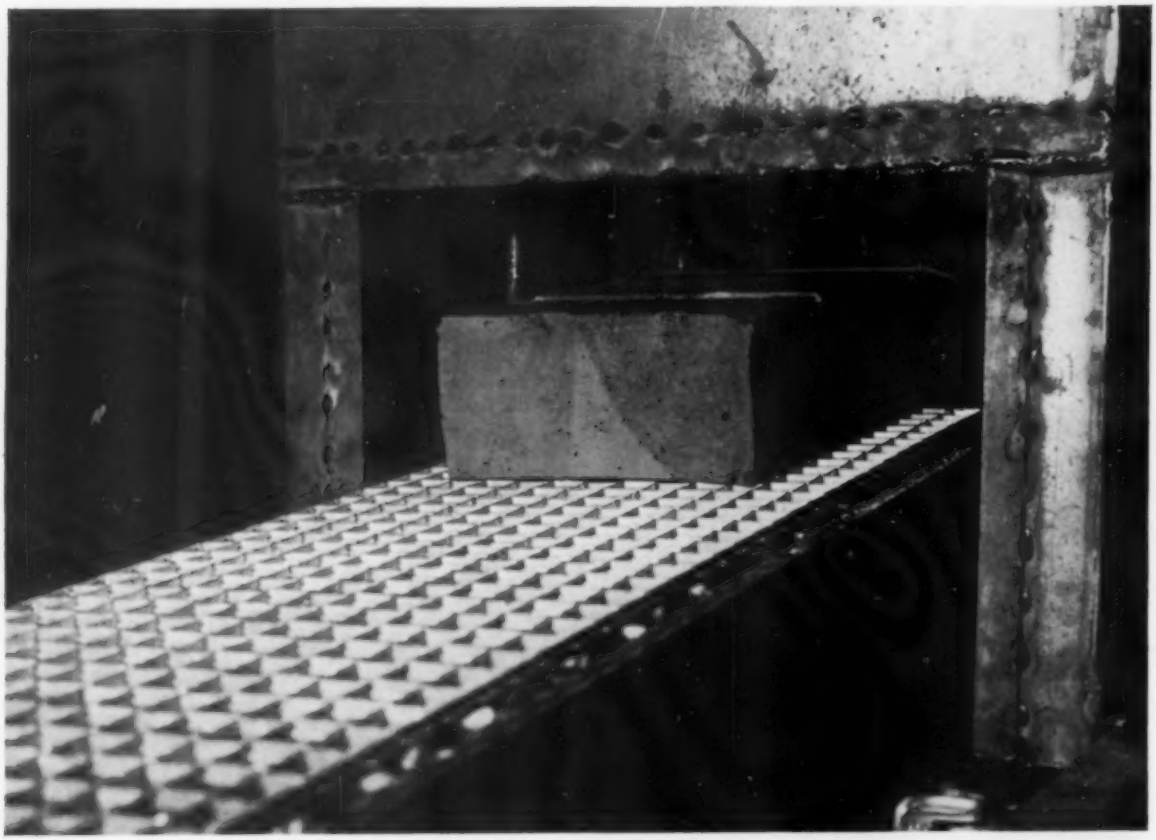
H. K. Porter Appoints District Sales Head

Emil A. Axelson has been appointed Pittsburgh district sales manager, Refractories Division, H. K. Porter Co. He was formerly a steel mill specialist with the division.

Before joining Porter, Mr. Axelson was assistant open hearth superintendent for Bethlehem Steel Co. He is a graduate of Pennsylvania State University.

NEWS from Dow Corning

The Finishing Touch

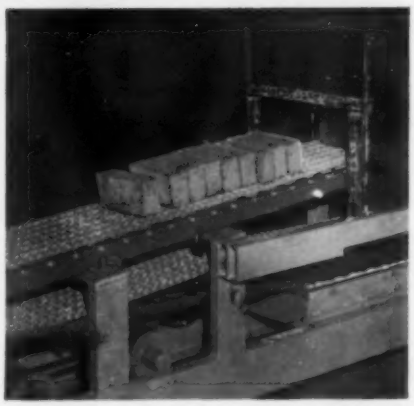


Easy, Low Cost Way to Give Your Brick New Sales Appeal

Here's a treatment that protects the original beauty of your brick — *builds in* some excellent new selling features. It's Silaneal®, a sodium siliconate treatment that makes brick water-repellent . . . minimizes efflorescence, keeps dirt on the surface where it rain-washes away. Result: Your brick stays clean in storage . . . beautiful during and after construction. And most important, your customers stay happy with your product!

Small Investment — Big Return

Silaneal treatment is inexpensive from every standpoint including equipment, labor and material cost. Most present users find Silaneal returns more than it costs — in fewer customer complaints, in reduced yard staining, lower selling costs and expanded markets.



Spray equipment for applying Silaneal specially designed by Dow Corning.

SILANEAL®
keeps brick clean

Dow Corning

...Silaneal keeps brick beautiful!

Structural Strength Affected?

No! And Silaneal is the *only* brick treating material proved safe in both field construction and SCPRF-prescribed wall tests. Photo at right shows wall test unit at work. These tests have proved that treating the bedding surfaces of brick with suction rates above 20 grams per minute improves wall strength, reduces rain penetration, and eliminates the need for wetting brick before lay-up.

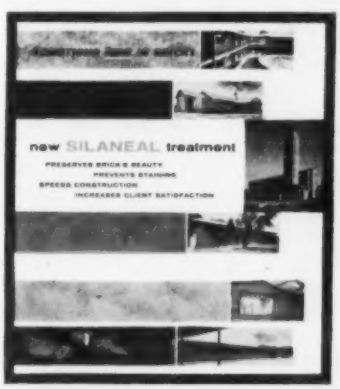
Do ALL Brick Need Silaneal?

In accordance with the recommendations of the SCPI, brick having an initial rate of absorption or suction greater than 20 grams per minute should have the suction reduced to 20 grams or less for maximum bond strength and minimum water penetration. Brick with a suction above 20 grams should have *all* surfaces treated with Silaneal. Brick having a suction *below* 20 grams should be treated on exposed faces but not on *bedding* surfaces.

Some low suction brick do not need Silaneal. Dow Corning repeatedly reminds architects and specification writers of this fact, with this statement: "There are several brick manufacturers who produce brick having low suction which already perform similar to a Silaneal treated brick. Little improvement in efflorescence control and reduction in dirt pickup could be accomplished by treating this type of brick with Silaneal. Silaneal treatment would not improve the laying properties of this type of brick."

Here's How Dow Corning Is Building Demand For Brick Treated With Silaneal

An industry-wide advertising and sales promotion program is carrying the Silaneal story to architects, builders, contractors and owners through a continuing series of big 2-page color advertisements in such leading publications as *Architectural Record*, *Progressive Architecture*, and *Building Construction Illustrated*.



Special sales aids for you: A full color descriptive movie is available at no charge for showing to your own personnel and prospects. Imprinted Silaneal literature and mailing pieces, and special "tell 'n sell" identification stickers for your sample panels and letterheads round out a promotion program that's creating a great and growing demand for *your* brick treated with Silaneal.

Get full information about Silaneal now. Phone or write today.

CORPORATION MIDLAND, MICHIGAN

branches: ATLANTA BOSTON CHICAGO CLEVELAND DALLAS LOS ANGELES NEW YORK WASHINGTON, D. C.

Circle Service No. 31

News of the Industry . . .

WASHINGTON, D. C.—President Dwight D. Eisenhower (second from left), registers keen interest in the clay masonry family fallout shelter, on display at the AFL-CIO Union-Industries Show recently. At a special pre-opening showing for the President, William F. Roark, (right) Director of Mason Relations for the Structural Clay Products Institute, points out protection offered by the shelter. Escorting the President were AFL-CIO President George Meany (left), and William F. Schnitzler, AFL-CIO Secretary-Treasurer.

The display was erected by the Structural Clay Products Institute, national association of brick and structural tile makers, in cooperation with the Bricklayers, Masons & Plasterers' Association and the Mason Contractors Association of America.

New Patching Mix Made For Open Hearths

A new slurry-mix, mixer and gun combination has been developed by Harbison-Walker Refractories Co., Pittsburgh, Pa. for applying hot patching material in open hearth furnaces, not only along the back wall, port skews, front wall and uptakes, but on the basic roof as well.

The mix is a fine-ground refractory material which is supplied in both chrome base and chrome-magnesite base.

Besides the steel industry, the mix can be used in the copper industry for maintaining sidewalls and other areas of refining furnaces exposed to erosion.

Mexican Ceramic Chemicals Plant Goes Into Production

The first Mexican facility for manufacturing ceramic opacifiers was officially put into production recently by Industrias M&T de Mexico, a subsidiary of Metal & Thermit Corporation, New York.

M&T is the world's leading detinner and a major supplier of industrial chemicals, metals and alloys and arc welding equipment and electrodes.

SCPRF News Notes

Starting this issue BRICK & CLAY RECORD will present the first in a series of reports on what's happening at the Structural Clay Products Research Center in Geneva, Ill.

The first commercial panel job is now in the works. Units have been ordered and panel prefabrication will begin in August. A MCAA member will erect the panels.

Beginning this year all members in good standing will receive a membership certificate for framing and display. This will be an annual award.

Acoustile is now being produced in one plant and a second one is to start soon. It is creating wide interest in architectural circles.

Arthur D. Little will conduct a wide range investigation on brick durability. This will give fundamental information on many of the weathering problems.

Welcome Hugh Campbell and Hazelton Brick Co. into the membership of SCPRF.

Colin C. Munro, Jr., market research specialist for SCPRF, has moved his activities now to region five at SCPI as regional director.

A specially designed clay three-cell tile floor beam unit has been designed for the Urban Renewal house of Living for Young Home Makers, magazine. It will be preassembled into floor beams. Surface is exposed as floor finish. The house will be built of only two clay units, a cavity wall norman brick and the above floor tile unit. Cavity wall is prestressed on the job to develop earth quake and tornado resistance.

Sodium silicate with a filler is the adhesive holding the tiles and the center core is reinforced and concrete filled.

To honor the new Foundation Chairman, Cecil Frisk, and also to alert the staff on such occasions, a five star flag has been presented to Cec which will be flown from the flag pole on each of his visits to the Foundation. From his enthusiastic approach to his job. it is evident that the flag will fly frequently.

The SCR masonry process has made history. In Milwaukee 72% of the contractors are using some form of it. The results show a 100% increase in brick homes as compared with only 40% increase in a similar town without the process. Despite 30% increase in wage rates, and a slight increase in material prices, cost of brick work decreased 20% in six years. That's a record. In cities not using the process with similar conditions, brick laying prices increased 20%.

News of the Industry . .

Kaiser Opens New Plant

Kaiser Refractories & Chemicals' new periclase plant at Midland, Mich. is now in operation. The plant has a capacity to produce 45,000 tons of periclase and refractory grade magnesia a year. Facilities include a 275-foot rotary kiln and associated filtering and handling equipment.

Denver Brick and Pipe Builds Handsome New Office

Rapid production and sales expansion in both sewer pipe and brick fields has led to a unique construction project at Denver Brick & Pipe Company, Denver, Colorado, which converted a former roadway, in front of the firm's 50-year old office building into a smart new 1,200 square foot multi-purpose modern office.

Of long low brick construction, the new office building juts out at right angles to the former 2-story office building, and contains space for general office, sales department, for both brick and pipe, shipping department, and clerical offices. As shown, the long, narrow building is a living example of brick construction possibilities including a sample courtyard at the right end of the building which displays all varieties of brick produced by Denver Brick & Pipe Company, plus a wide variety of brick used in construction of the building itself.

TRADE NEWS

CB&W Promotes Poole

R. F. Poole has been named Assistant General Manager of Chisholm, Boyd & White Company, Chicago, according to an announcement by R. A. Ebersole, exec. V. P. Joining the company as a Sales Engineer in 1957, Poole was made Sales Manager in February of 1960 and has served in his new capacity for the past several months.

Sales Rep for Pa. Crusher

Pennsylvania Crusher Division of Bath Iron Works Corporation, West Chester, Penna., announces a new sales representative for the state of Louisiana.

Fletcher Equipment & Supplies, Inc., with main office at 743 Camp Street, P. O. Box 539, New Orleans, La. and a branch office at 1738 Scenic Highway, Baton Rouge, La., will represent Pennsylvania on their complete line of crushers and crushing equipment.

Caterpillar Appoints Two

The appointment of two Caterpillar Tractor Co. executives to new responsibilities has recently been announced.

Lloyd J. Ely had been named a vice president of the Company's Foreign Trade Group. For the past four years he has been director of manufacturing for domestic operations. Ely joined the Company in 1916 as a machinist.

Gordon Swardenski, assistant manager of the Peoria plant since 1957, will succeed Ely as director of manufacturing for domestic operations.

Leeds & Northrup Shipments Up

I. Melville Stein, president of Leeds & Northrup Co., Philadelphia, announced that shipments and net earnings during the fiscal year were at an all-time high for the company.

The net earnings for the fiscal year which ended May 31 were equivalent to $2.12 per share, representing an increase of 26 per cent over the per share earnings of the previous year.

Obituaries

Joseph H. Nussel

Joseph H. Nussel, superintendent of many brick plants in the United States and Mexico in his lifetime, recently in Chillicothe, Mo. He was 76. After more than 50 years of experience in the brick industry, he moved to Chillicothe in 1955 to serve in an advisory capacity for Midland Brick & Tile.

John A. Bishop

One of the oldest brick and clay products men, John A. Bishop, 88 years of age, retired plant manager of the Southern Brick & Tile Co., died recently at the Peewee Valley Sanatorium & Hospital, Peewee Valley, Ky., 25 miles east of Louisville, where he had been a patient for some time.

Bishop was a brother of T. Bishop, founder of the company, who died a few months ago in his high nineties.

Bishop, a native of Germany, worked for the brick company a number of years before retiring 15 years ago. He was a Mason and a member of Strathmoor Presbyterian Church.

Mrs. Otto H. Watson

Mrs. Otto H. Watson, 69 years of age, who was a secretary for some 30 years for the Louisville Fire Brick Works, with plants in Louisville and Grahn Ky., died recently at the Norton Memorial Infirmary, Louisville. She was the former Louis Ernst, niece of the late Karl Ernst founder of the company.

Dan H. Wallace, Jr.

Dan H. Wallace, Jr. organizer and president of the Broad River Brick Company, Gaffney, S. C., died June 18, 1960, at a Savannah, Ga., hospital after suffering a cerebral hemorrhage.

Wallace was active in civic and political affairs. He was a former state chairman of the S. C. Republican party. He was also chairman of the board of Greenville Steel and Foundry Co., Greenville, S. C.

you are going to grow...
by leaps and bounds...in the 1960's
"Ceramics will have to produce in the next score of years as much as was produced in the first 60 years of this century. At the peak of the demand for ceramics, which will possibly occur about 1967, the rate of production will have to be 50% greater than the production rate in 1959," from a report to the readers of Ceramic Industry on 1960 opportunities in Ceramics.
TAM is growing with you

Every indicator points to a pyramiding economy in the 1960's. Population, Gross National Product, Per Capita Wealth and Spending, Home-Office-Store-Plant Building are slated to go up... Up... UP! Couple that with a new found interest in ceramics of all types and you have the basis for the tremendous increase forecast for our industry. TAM... fully cognizant of this... is currently erecting new plant and equipment, while at the same time planning even further expansions. Thus in production planning, as in product development, TAM takes the lead by solving tomorrow's problems today. Your source of supply for quality opacifiers is assured.

TAM
DIVISION NATIONAL LEAD COMPANY

opacifiers of dependable quality

SUPERPAX A
SUPERPAX
ZIRCOPAX
DOUBLE SILICATES
OPAX
OPAX S
TREOPAX

in dependable quantity

Executive and Sales Offices: 111 Broadway, New York City
General Offices, Works and Research Laboratories: Niagara Falls, N. Y.

Circle Service No. 32

Aeiral view of plant, Columbia, S. C. In background is Columbia Pipe Co. Both are subsidiaries of Richland Shale Products Co.

Columbia Brick and Tile Co. Now Producing 73 Million Brick a Year from two Tunnel Kilns

By Neal Mohler, Technical Editor

The brick industry is booming in South Carolina! As BRICK & CLAY RECORD goes to press, there are seven tunnel kilns being built, or about to be built, in the State of South Carolina. One of the companies just recently completing its expansion program was the Columbia Brick & Tile Co. in Columbia. The plant story on the company's 499 foot tunnel kiln was reported in the March 1958 issue of BRICK & CLAY RECORD. Since that time Columbia has duplicated its entire plant facilities, from raw material storage, through grinding, machine room, tunnel kiln and unloading stations. This story is a report on the latest phase of the company's expansion program.

Seventy three million brick per year in a town of less than 100,000 people, or more than 700 brick per person, is what the Columbia Brick & Tile Co., is making in its Columbia plant. This in itself is quite an accomplishment and with competition in the surrounding area along with the company's other plants, the figure per capita is well over 1200 brick per person per year.

Duplicating the entire original plant at a cost of well over $1,000,000.00, the Columbia Brick & Tile Co., which is an affiliate of Richland Shale Products Co., Columbia, has more than doubled its production since 1958. The latest phase of the company's expansion program was completed in October of 1959 when the second 499 ft. tunnel kiln was lit. Using the experience which was obtained in the operation of the first tunnel kiln, the plant operators were immediately able to bring the kiln up to its rated capacity of 100,000 brick per day, making total production of the plant in excess of 200,000 brick per day. These production figures are nominal and can be exceeded by as much as 10% should business conditions warrant additional production.

Housing both kiln units and manufacturing units required the erection of additional buildings. New buildings were supplied by Southern Fabricators, Inc., from Staley, North Carolina. Today the total roofed area including raw material storage is in excess of 290,000 square feet. With the exception of a few revisions in

the tunnel kiln, it is an exact duplicate of the original kiln. The preheat zone of the second kiln was lengthened an additional 15 feet by shortening the exhaust zone of the kiln. This, basically, is the only difference between the No. 1 kiln and the No. 2 kiln.

Approximately 60% of the company's production is in red face and common brick. The remaining 40% is in light colors. All told, the company makes 48 different types of brick. This requires quite an inventory requirement along with exacting production planning control.

Entire Order Processed

Because of the many types of brick made and the many blends of these types, when an order is received for a specific type of brick or range of colors, the entire order is put in the production schedule, manufactured, and inventoried until the customer desires and requires delivery. Thus, inventory requirements are quite large but with the system that Columbia has developed an easy inventory control is kept.

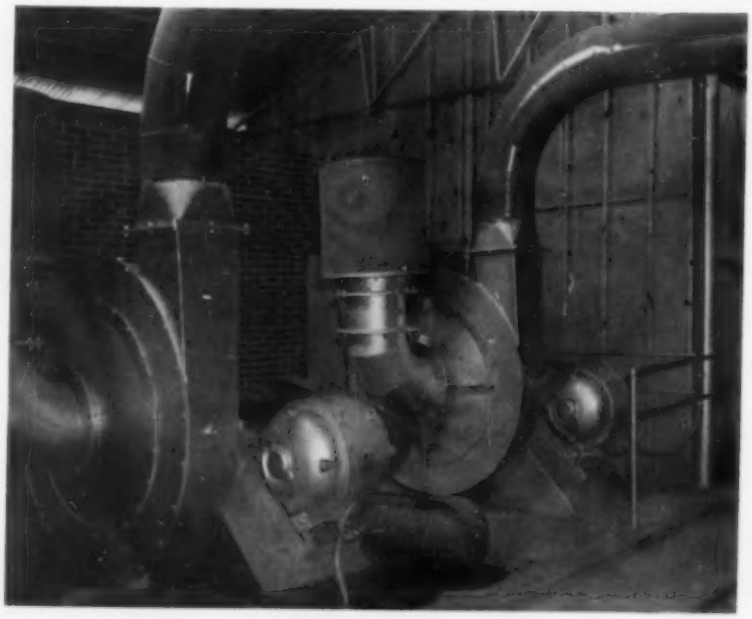
Since the original story appeared in BRICK & CLAY RECORD, several refinements have been made in the company's operations. For example, the office of George Bishop, Plant Manager, has been installed immediately in front of a control room which houses all the main indicators, recorders, and controls for the entire plant. A glass window enables Bishop to see at a glance if the plant is operating normally or if any difficulty exists in any part of the plant.

Recording tachometers have been installed on each of the brick machines which indicate the rate of production on each machine, so that Bishop can view this rate of production which is maintained at 20,000 brick per hour on each machine. Any down time is recorded instantaneously and should it persist, Bishop can go into the plant and determine the cause of difficulty, or talk to any part of the plant by an intercom system.

Indicate Each Performance

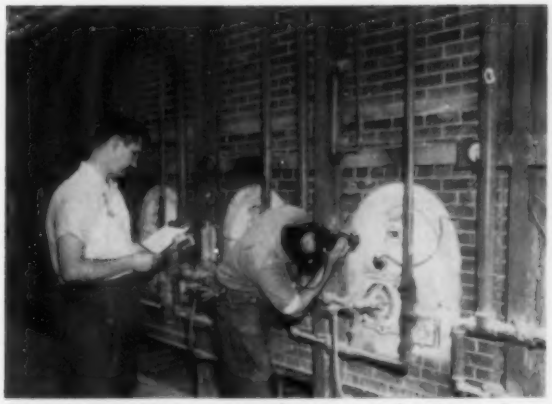
Kiln controls are also housed in the same room along with special records and indicating lights which tell about the performance of each kiln. Temperature indicators, recorders and controllers for each kiln

The grinding room is equipped with a twin layout consisting of American Rim Discharge grinders and Leahy Screens.



Twin North American Blowers which furnish air to the two kilns are housed away from the kiln to provide clean air at all times.

The two 499-ft. Harrop kilns are dual-fuel fired, and produce 100,000 brick daily each.



Optical temperatures are taken at regular intervals to provide constant control over the firing process.

Before setting, each car is carefully repaired at a repair station. Notice car-top guides which follow kiln contour.

are located in this room. High fire and low fire cycles are indicated by corresponding lights; should the kiln remain on high fire for any long period of time this again is a possible source of trouble and the plant manager can check it out and take corrective steps.

The rate of gas flow is also recorded on a 24 hour meter in the control room.

Six different deposits of raw material are mined to supply clays and shales to Columbia's operation. The red brick is made by mixing definite proportions of three shales, while kaolin mixed with some of the other raw materials is used for the production of the lighter colors and blends that are being manufactured.

About 60% of the shale that is used is taken from three pits that are adjacent to the plant while shale that is used for color is won from two pits located about seven miles from the plant, and the kaolin is obtained from a site 15 miles away.

As soon as the raw material is carried to the plant in dump trucks it is dumped into 25 yard capacity hoppers and there fed to primary crushers. Meco single roll primary crushers, powered with a 100 HP motor each, breaks the raw material into pieces smaller than three inches.

After the initial sizing, the clay is taken to the crude clay storage sheds. Each type of shale is segregated to its special pile in the shed.

Taken from Storage

When a production order dictates, the sized clay is taken from primary storage, mixed according to batch requirements, and then ground. The mixed and ground material then goes into prepared clay storage for use as needed. The different shales are taken from the crude storage with a Hough front end loader, equipped with a three yard bucket. This front end loader deposits the different shales into appropriate bins which vary in size from 15 to 35 cubic yards, the largest being used for the clay which makes up the largest percentage in the mix, while less important shales are put in the smaller bins. All of the bins empty onto a belt that carries the clay to the grinding department.

The largest bins have been equipped with a J. C. Steele even clay feeder, the intermediate size bins with mechanical reciprocating feeders, and the smallest bins Syntron vibrating feeders. The feeders were selected for accurate feed rates at volumes used and the plant is able to maintain its blends within ½% of specified percentage. Scales have been installed at these feeders and the operator of the grinding department is able to divert material from all feeders simultaneously to the scales automatically with a push button. The blend is established with this weighing equipment and is

Brick are cubed in 500-brick packs, using jigs and templates for easy manual handling.

After strapping, lift trucks remove the package either to inventory or to a loading station.

Delivery trucks do their own loading, and unloading utilizing Superlite Equipment.

checked at regular intervals to check the operation of the feeders.

From the feeders the shale is carried by conveyors to the grinding building, where the shale is put into bins and is fed to scalping screens by syntron feeders which maintain a regular and constant feed.

Automatically Stop

When the receiving bins over the scalping screens become full, the feeders operating in the crude storage area automatically stop. From the scalping screens the fines are by-passed around the No. 384 American rim discharge grinders while the shale not passing the screen goes to one of the two grinders. All fine materials go to one bank of four screens and vibrated Leahy screens. Tailings are returned to the grinders and all material that passes the 11 mesh screens is conveyed to the prepared clay storage sheds. These buildings are duplicates of the crude storage sheds. The shuttle conveyors are installed in 7 x 7 dog houses on top the buildings.

Clay properly blended and sized is loaded from the clay storage buildings into large hoppers. The loading is done with the same Hough front-end loaders used in the crude storage area. The hoppers are big enough to hold material for 30,000 brick each, reducing the necessity of frequent filling. The clay is removed from the receiving hoppers with J. C. Steele even clay feeders and placed on the conveyors that take it to the machine room. At this point one tenth of one per cent soda ash is added to the blend with Syntron feeders to improve handling characteristics.

The machine room has been designed to produce 40,000 brick per hour, 20,000 from each of two machines. The latest in automatic equipment and controls is utilized in the machine room. J. C. Steele equipment is used exclusively in this phase of production. Steele pug mills, vacuum puggers, brick machines, and cutters are all controlled by one man on each production line. This man is able to control the tempering water by referring to the current used as indicated by ammeters, and in addition to the stop and start buttons for each machine, he can shut off all machines at one time by hitting the "Panic" button. Utilizing six hackers on each of the production lines, a total of 12 men are used to hack the green brick on the tunnel kiln cars. The cars are equipped with Sanford-Day bearings and car tops from North State Pyrophyllite Co. The cars are 7′2″ wide and 9′ 6″ long, each car containing a setting 8 brick wide and 12 brick high.

Move on Six Tracks

Cars move through the hacking area on six tracks. From the six hacking stations the loaded cars move to the predryers or warming chambers by hydraulic pushers. The warming chambers, 100 feet long and six tracks wide were designed to deliver brick to the dryer properly conditioned to allow the dryer to operate most efficiently. Two Robinson fans on each track deliver warm, air from the dryers. The maintained temperature in the predryer is 100 to 120° F.

Cars are drawn from the predryer and moved on a transfer car to the entrance end of the dryers, each of which is 182 ft. long, double tracked, with each track holding 18 cars. Dryer temperatures at the discharge

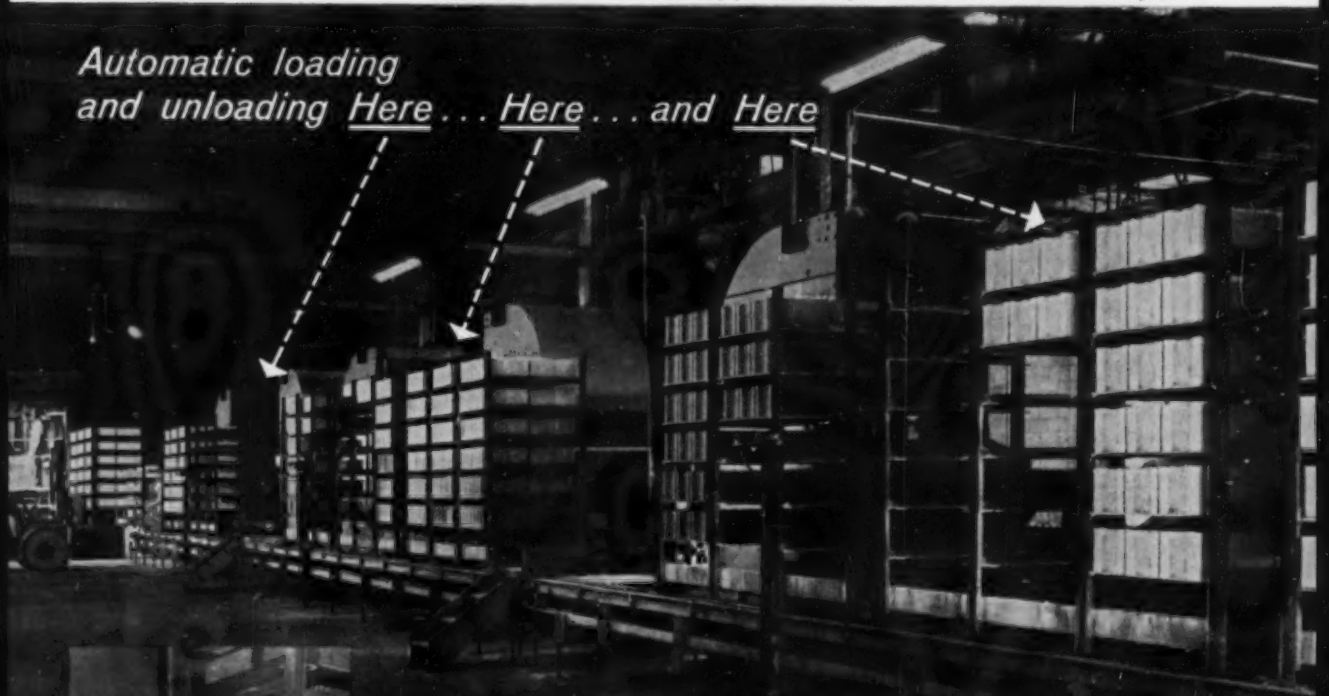
Continued on page 66

No. 154 in a series of advertisements featuring leaders in the concrete products industry who are stepping up block production with Besser Vibrapac machines.

Inland has three Besser Auto-Cubers. Each cubes block automatically, then discharges cube to a gravity roller conveyor ready for transfer to the storage yard.

An automatic weight batcher feeds six Besser 50-cu. ft. Mixers — two for each of Inland's three Vibrapacs.

Three Besser-Matics are cycled to keep pace with the production rate of three Besser Vibrapacs.



Mr. Stanley Buchenberger, general manager of Inland Building Block Corp. (left) and Mr. Frank Colabella, plant superintendent.

Greatly reduced block-handling costs and fewer culls

after installing Besser-Matic Automation

Another block plant enjoys substantial savings by equipping with Besser-Matics! It's Inland Building Block Corp., Division of National Cincrete Corp., Hicksville, N. Y.

At Inland, three Besser-Matics supplement three Besser Vibrapacs, to do all these operations *automatically:* Load green block. Index new racks. Unload cured block. Depallet cured block. Return empty pallets. No off-bearing is required and no power hoist. There are no culls due to careless handling.

Other divisions of National Cincrete Corp. are Besser-equipped, also. In five plants, including Inland, there are 13 Vibrapacs.

Before *you* invest in new block-making equipment, get all the facts on Vibrapacs and Besser-Matics and how they can help you earn extra profits. Ask your Besser representative.

BESSER COMPANY

Dept. 139
Alpena, Mich., U.S.A.

First in Concrete Block Machines

Circle Service No. 33

A0-330

Jack Clark of SCPI, William Sells, General Shale Brick Co., and Bob Taylor of SCPRF.

Mrs. Jean Chapman, SBTMA, Atlanta, Ga., Richard Bickerstaff, Bickerstaff Clay Products Co., Columbus, Ga., and Richard Zachry, also of Bickerstaff Co.

At SB&TA Annual Meeting Members are Told

Architecture, Education, Research, Promotion Boost Masonry Construction

Masonry construction is no longer restricted to areas where brick is available. Ceramic education is faltering and needs the industry needle. Research and promotion stimulates use of brick and tile through education—how to use—how to reduce costs.

The Southern Brick & Tile Association held its 18th Annual meeting at Sea Island, Ga., recently. Presiding officer was President Larry Danzler of the Cherokee Brick Co.

Jack Clark of SCPI gave a brief outline of the industry's programs now in effect. He went on to discuss the proposed programs for 1961. The program outlined will be directed to both the residential and non-residential fields.

A survey made some years ago pointed out that the architect was desirous of information on esthetics, cost, structural strength, and workmanship. The non-residential program will be based on these four

Richard Bickerstaff, Bickerstaff Brick Co.; John Herbert, Bush Brick Co. and W. P. Stevens of Macon, Ga.

Deny Burn, Burns Brick Co., Bruce Drysdale, Moland Drysdale Corp., W. S. Jones, Boren Clay Products and Chas. Taylor of Taylor Brick Co.

James Lee of Southern B & T Assn. and Larry Danzler of Cherokee B & T Co. (pres. of Southern B & T Assn.)

J. C. Steele, J. C. Steele & Sons, W. P. Steele, Pine Hall Brick & Pipe Co., and Joe Patrick, Southern B & T Co.

points and, according to Clark, national advertising in the architectural press will point up the clay products story based on these points. Clark mentioned that the program is to be a well-rounded program and will include promotional efforts to the business man as well.

Architect Lauds Masonry

Harlan E. McClure, Dean, School of Architects, Clemson College, indicated that regionalism controlled construction in the past. Such effects as climate, wealth, terraine, availability of material determined type of construction.

Today, however, its effects are at a minimum. The printed word and fast communications tells the whole world almost immediately what is new and the new is partially or wholly copied.

Gil Robinson, head of ceramic Engineering, Clemson College, gave a very revealing picture of trends in education.

Mr. and Mrs. Kenneth Dunwoody, Cherokee Brick and Tile Company, Macon, Ga. and Mrs. Boyd Miller, Salisbury, N. C.

Ceramic Engineering education, in fact all engineering education, is changing very rapidly. The changes are somewhat controversial. It is of great importance that you are aware of the changes no matter what side of the controversy you choose.

The course matter is being changed. There is pressure on one side to increase the humanities courses and the other side to increase the sciences. The present programs are full, and any increase must come at the sacrifice of existing courses. *The increased sciences and humanities are being installed at the expense of ceramic courses.*

A change is occurring in the business end of education. The size of classes is being increased to sections

Continued on page 55

Walter Hopkins, Southern Brick and Tile Mfgr. Assn. Atlanta, Ga., Mrs. John Herbert, Nashville, Tenn., George Sells, General Shale Products Co., Miss Alva Herbert, daughter of Mr. and Mrs. John Herbert, W. G. Bush Company, Nashville, Tenn.

Ernest Merry and Kenneth Merry, Merry Bros. B & T Co.; Chad Heath, Cherokee B & T Co., and Harry Robinson of Merry Bros.

NCPMI Steps Up Promotion, Research Programs

A. G. Cochran, Clay Sewer Pipe Assn., G. A. Robinson, NCPMI and Richard Holl of Logan Clay Products Co. shown during a brief respite from the NCPMI business meetings. Shown here and on page 45 are pictures of a few of the men who attended.

Tom E. Carey
Red Wing Sewer Pipe Corp.

Addison Hawley
Gladding, McBean & Co.

Paul Robinson
Robinson Clay Products Co.

Important industry-wide research projects, government relations, and a consolidated advertising and public relations program were the highlights at the 1960 Annual Meeting of the National Clay Pipe Manufacturers, Inc., in Washington, D. C., recently.

Advertising, Depletion, Research, Operating and Specifications Committees met and Committee reports and recommendations were presented to the Board of Directors by their respective chairmen.

At the General Membership Meeting, President G. A. Robinson, announced that the Fall Meeting would be at Boulder, Colorado, the week of September 25th.

Auditors reports and financial statements were presented by the Treasurer, R. G. Scott.

R. H. Holl, Chairman of the Advertising Committee, announced that after more than a year of study the Committee decided to combine the association's advertising and public relations programs in Washington, D. C. to attain greater efficiency in the industry's joint promotional campaign. Holl reported that J. Gordon Manchester Advertising, Inc. would handle the new program in coordina-

F. B. Decke
Grand Ledge Clay Products Co.

L. R. Campbell
W. S. Dickey Mfg. Co.

Jack Stein
Clay Pipe Institute

L. A. Young
Southern Clay Pipe Inst.

Park Taylor
NATCO Corp.

F. F. Steele, Jr.
Pine Hall Brick & Pipe Co.

Dave Clemens
Cannelton Sewer Pipe Co.

J. J. Dyer
Kaul Clay Co.

W. E. Robinson
Robinson Clay Products Co.

tion with the Advertising Committee and the NCPMI Washington Office.

Holl told the group that the association will have displays at the National Plumbing, Heating and Cooling Exposition, Cleveland, Ohio; Public Works Congress and Equipment Show, New York; and Water and Sewer Works Convention, Philadelphia, Pennsylvania; and that promotional literature had been prepared for use at these events and for follow-up material on inquiries from professional personnel. Hall also reported that a national advertising study would be made in connection with the 1961 program.

Clemens Reports

E. C. Clemens, Acting Chairman, reported for the Research Advisory Committee and itemized the projects to be studied in the expanded 1960 research program. He emphasized the fact that jointing materials and design would continue to be of primary importance. Another major project included a study of the fundamental properties of clay pipe bodies.

Other projects in the expanded program included, (1) the determination of shear loads resulting from back filling, (2) the continuation of flow-coefficient studies, and (3) air testing of new sanitary sewer lines.

Hear from Research

A. J. Reed, Research Director, reported on the status of current projects being studied in the industry's research laboratory at Crystal Lake, Illinois. Chester Keeney, Research Engineer at the laboratory, presented a paper dealing with the historical background of hydraulic studies and the development of flow-coefficient formulas which are now used in the design of new sanitary sewage systems.

M. R. Hardin, Chairman gave the report of the Depletion Committee. He commented on the status of the Cannelton Sewer Pipe Company—U. S. Supreme Court case and announced that Erwin Griswold, Dean, Harvard Law School would present the oral argument for the taxpayer.

T. L. Howard
W. S. Dickey Pipe Co.

S. A. Dee
NATCO Corp.

John Hall
NCPMI

A. J. Clemens
Cannelton Sewer Pipe Co.

J. M. Palmer
Lee Clay Products Co.

FIRING HEAVY CLAY PRODUCTS-Part 2

By George Seanor

Specific Factors in Kiln Design and Operation

Last month Seanor stated that the oxidation of carbon occurred before the final oxidation of sulphur. This is true with certain coal measure clays and shales like the Lower Kittanning Fireclay, the Clarion Fireclay, and the shales associated with them in Western Pennsylvania and Eastern Ohio. Experimental work by Brownell, at Alfred University, indicates that many shales loose the sulphur by oxidation before oxidation of the carbon is completed.

A well dried brick made from the Lower Kittanning clay, when slightly heated to a temperature below that at which oxidation could take place, if broken in two and smelled quickly will have a very strong odor of sulpur. The same brick will give off sulphur by oxidation, very rapidly at around 1200° F (actual brick temperature). In this brick sulphur in some form seems to remain dormant until around 2000° F and this is the cause of the blisters on the faces of these brick. The blisters may be the size of one half of a golf ball. They originate just under the surface of the face if the temperature is sufficient to vitrify the surface skin before all of this type of sulphur has been oxidized. These blisters differ from "bloating" from un-oxidized carbon; and occur only just under the surfaces of the brick.

The firing of an individual brick (one brick at a time) is rather simple, but only a few general commercial conclusions can be drawn from it. Mass setting of brick in commercial kilns—from 1,000 to 4,000 on tunnel kiln cars, from 50,000 to 150,000 in periodic kilns of downdraft type, and up to several hundred thousand in scove kilns—complicates the firing problem. The art of commercial firing is to slow down the fast maturing places which will over fire, while trying to speed up the slow maturing places in the setting. As the vital factors in the kiln's design depart from good technical design, the art becomes more and more difficult to achieve.

Many Factors

There are many factors in the over-all design of a kiln system, including the setting pattern which is part of the kiln's design. Each single factor should be properly designed so that the system works well as a whole, and so that each factor works well with the other factors involved in the kiln's operation. All factors should be designed and coordinated in proper proportion with the other factors.

Often if a defective factor is re-designed to be of better proportion technically, improvement is not noted because some other factor should have been corrected at the same time.

It is difficult to discuss a single factor in kiln design, or operation, because so many other factors affect final efficiency of the kiln. However, if all factors are properly designed, to work with each other, most economical results are obtained and highest yield of first quality brick results. For example, if the fireboxes on a kiln are too small, and are redesigned to proper size, no beneficial results will be had if the flues are too small. The different factors which work with each other must be properly designed and proportioned to each other, to secure highest efficiency of the kiln as a whole.

It is a waste of time to discuss and prescribe for symptoms of poor over-all design. For example, a number of years ago a problem in the firing of down draft kilns with bituminous coal was "sooting-up". Soon after the kiln was started the interstices between the brick would fill up with accummulations of soot and this would damper off the flow of gases through the kiln and the kiln would "stall". There were many "tricks of the trade" to overcome this difficulty, such as "shooting with blasting powder", starting the kiln with wood or coke, firing with only two fireboxes at 180° to each other for several days, etc. Discussions of symptoms like this, per se, are futile since they would never occur with a properly designed and properly set kiln.

In the following discussion of specific factors in kiln design and operation, it must always be remembered that one factor of good design will not function properly unless the other factors involved are also of good design.

Pressure Heads

The force that moves gases through a kiln is the net pressure head existing in the kiln as a whole and the cross sectional area upon which the pressure head can work. Some of the pressure heads between two different points in the kiln may be favorable and advance the volume of gases through the kiln. Pressure heads between other points may be "unfavorable" and tend to retard flow of gases through the kiln. The circulatory capacity of a kiln depends upon the net pressure head between the pressure of the atmosphere surrounding the kiln, and the pressure of the kiln gases as they

Continued on page 47

leave the kiln—either through a stack or through a fan, and the cross sectional areas that are available within the kiln system. There should be no bottlenecks to the passage of kiln gases.

No matter what type of kiln—up and down draft, tunnel, scove, or chamber kiln, it is the net pressure head, working on the cross sectional area of flues and ducts which exist in the entire kiln system that moves the volume of kiln gases through the kiln.

Kiln operators who depend upon "draft-gauges" have but vague means of measuring pressure heads since a draft gauge gives but little information as to volume of gases passing through the kiln. When pressures within a kiln are measured in terms of "absolute pressure" the pressure heads are immediately discernible and there is no confusion of "draft". Using a draft gauge to estimate the volume of gases passing through a kiln is like trying to estimate the size of a dog by measuring it's tail, without being able to see the dog.

Draft readings are frequently very deceptive. Draft is sometimes taken through a peep-hole in the door of a down draft kiln. Quite likely this reading pertains to the "jet-action" (viscous drag) of the gases rushing up from the fireboxes on each side of the door. Similarly draft readings through the wall of a tunnel kiln frequently are measurements of the viscous drag of the gases moving between the kiln wall and the setting on the cars, and are not indicative of the absolute pressure in the center of the brick on the car. Kiln operators, not infrequently, fool themselves with their draft gauge.

Volume of Gases Encountered in Kiln Firing

Brick are processed with hot combustion gases, or hot mixtures of combustion gases and air, or more generally speaking, by hot kiln gases. The volume of kiln gases required to process an ordinary down draft kiln full of brick is enormous but the importance of designing the kilns to handle this astonishing volume of gases has had little emphasis in ceramic literature.

The draft gauge is a very vague and practically meaningless indirect index of volumes flowing through a kiln. Harrop criticized the draft gauge because it measures only flue resistance, or some other resistance within the kiln system, and give NO information as to the volume and velocities of kiln gases, which are of prime importance in the firing process.[1] Bole said "The factors governing the distribution and flow of heat through kilns are little understood and quantitive data are largely lacking".[2]

Draft Reading Simple

While it irritates draft gauge enthusiasts to tell them so, a "draft" reading is simply an index of the unused capacity of the kiln's stack, or kiln's fan, at the place at which the "draft" reading is taken. This characteristic of a "draft" reading is rarely understood by practical kiln men. Two published accounts which show this phase of "draft", but which do not emphasize it, follow:

The Bureau of Mines Experimental Car personnel fired a kiln twice on one plant. The following data is available (if you dig it out of the report). The volume of gas that passed through the kiln on the first burn was 114,149,096 Cu. Ft., but on the second burn only 86,078,663 Cu. Ft. passed through the kiln—or 75% of the volume on the first burn. On the first burn they used 100,823 pounds of coal and they used 86,102 pounds on the second burn, or about 80% of the coal used on the first burn. Time of firing on first burn was 280 hours and it was 210 hours on the second burn.

The maximum "draft" used on the first burn was 0.176″ W. P. and the maximum draft used on the second burn was 0.14″ W.P.

Report states that there was no appreciable difference in the quality of the brick from these two burns.

The report does not emphasize that between these two burns a defect in the kiln's design was partially corrected by increasing the size of the throats from the under floor flues into the multiple stacks. Notice that after this "bottle-neck" had been partially eliminated, the maximum draft dropped from 0.176″ W.P. to 0.14″ W.P. on the second burn.

It is significant, on this kiln, that with 20% less draft, a saving was made of 25% in the volume of gases dragged through the kiln; a saving of about 20% of the coal was made, and the second kiln was fired in 210 hours instead of the 280 hours of the first burn.

Stacks Had More Volume

The significant factor is that when the openings into the stacks were enlarged, the stacks had more volume of kiln gases to handle, and more of the potential capacities of the stacks was utilized in the second burn than in the first. This is indicated by the lower draft required on the second burn. While it is very disconcerting to high draft is indicative of bottle-necks somewhere in the kiln system with "starve the stack or fan.

Another published report showing that draft indicates unused capacity of a fan is found in "high draft burning" by Frank Shubert, Journal of the Canadian Ceramic Society, 1956—page 60. He experimented with two high-draft fans on a periodic kiln.

Draft of 0.70″

On one burn he got a draft of 0.70″ W.P. Then he blocked off a part of the floor openings and got a draft of 1.00″ W.P. When the floor openings were blocked off, it reduced the volume of gases that could enter the fans, and since the fans were thus "starved" more, more of the potential fans capacity was unused. This is indicated by the 1.00″ of draft versus the 0.70″ of draft before the fans were "bottle-necked" by decreasing area of floor openings.

It is very difficult to convince traditionalists that when a high draft is needed it would be better to eliminate the bottle necks. High draft fans are a poor and very expensive means of off-setting the bad effects of bottle-necks in a kiln.

Continued Next Month

Next month, the late H. R. Straights cites experience with tunnel kilns and also, Seanor discusses stacks and chimneys and the importance of proper draft control. Static pressures within stacks along with capacities and factors that limit the capacities of stacks are brought to the limelight.

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[1]Harrop, C. B. "The Inadequacy of Static Pressure Draft Gauges" Transactions, American Ceramic Society, Volume XVII, Pp 223-241.

[2]Bole, G. A. Brick & Clay Record, Aug. 5, 1924, P 163.

17½ to 18½% in weight reduction over standard three core brick—No reduction in physical properties and strength—Extrusion is no problem but needs softer clay.

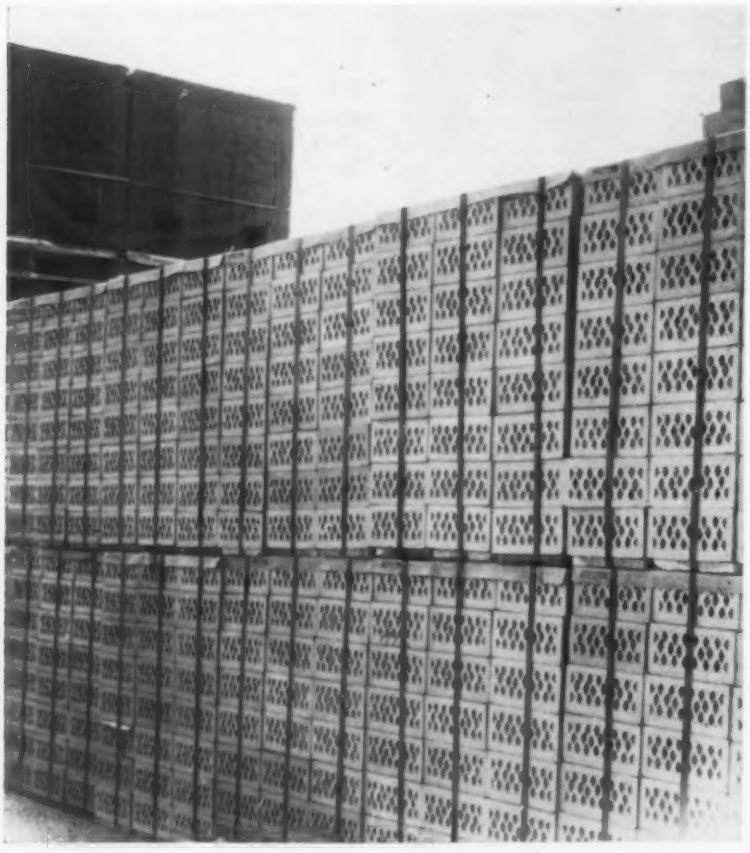
Multicored Die Cuts Brick Weight

by James L. Clark
The Robinson Brick & Tile Co.
Denver, Colorado

Face of die showing distribution of cores and length of die sides.

This is proof of the saying that "there is more than one way to skin a cat." Here the author approaches the problems of lightweight clay products by using multicolored dies instead of lightweight aggregate. He attains a considerable weight reduction by reducing the amount of clay used. There may be a further thought interjected here which involves the combining of the author's idea with lightweight aggregate as a batch addition.

Robco believes the approaches to lightweight products taken by SCPI Research Foundation, Clemson, Burns Brick Company and others, are all sound. We believe however, that not enough has been done to make structural clay products as light as possible in the first place. Brick of a much lighter weight can be made using the multicolored type die which is so popular on the European Continent.



No problems are experienced in plant handling and packaging of the lightweight brick.

Sincere in the belief that we must first make our product as lightweight as possible using existing processes and equipment, Robco obtained a European multicored die for testing. This was a modular 8 inch die with twenty-one diamond shaped cores ⅝ inch by ⅜ inch, and fourteen round cores ¼ inch in diameter. The die produces ware with a minimum wall thickness of ⅜ inch and approximately 28 percent coring.

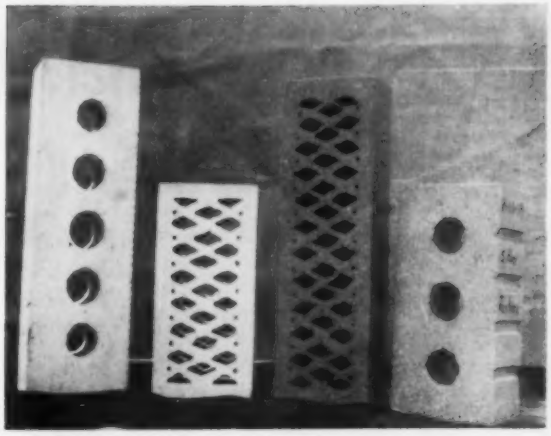
The long experience of European manufacturers in extrusion and die design was obvious on the first test run, for without qualification, non of the expected problems occurred. Extrusion, drying and firing were accomplished with minor changes in standard procedures. Upon making additional runs and evaluating the product a Norman type die was obtained and produced similar results with equal ease.

Basically the Same

This die is basically the same as the modular die, but has a curved shaper cap, with the core stems progressively longer toward the center, to match the curvature of the cap as a control in die balance. It has thirty-five ⅝ inch by 1 3/16 inch diamond cores and twenty-two round cores ¼ inch in diameter. The percentage of coring is approximately 34 per cent. Both dies produce ware with exceptionally good

Continued on page 49

Multicolored brick were made of buff and red clays and mixes of the clays with no apparent difficulty.



Multicolored brick weight 17½% less than three cored brick in the 8" size and 18½% less in the roman size.

Continued from page 48

properties, and foremost is the reduction in weight. Compared to our standard 3 core modular ware weighing 4 pounds, the multicore brick weighs 3.3 pounds, which is a saving of 17.5 percent. The Norman is slightly better with a weight reduction of 18.5 percent over our standard 5 core unit weighing 6 pounds.

Physical properties are equally good. Compression values have never been below 8000 psi and modulus of rupture results have remained above 650 psi. These values are of course lower than for similar ware with standard coring but all values are well within A.S.T.M. Specifications for Facing Brick, (A.S.T.M. C-216). However, the units are not within present requirements for coring and shell properties. Specifications now permit no more than 25 percent coring and a minimum wall thickness of ¾ inch. Due to local building restrictions it has been necessary to modify the dies to conform with A.S.T.M. coring and wall requirements. This has cut the weight-saving down to about 14.0 percent.

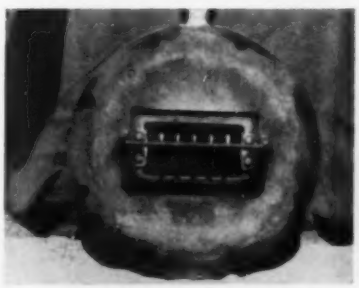
The die and bridge looking at it from the top. Note how light the core arms are and how short the die sides are.

Need Open to Question

The need for these requirements with modern production methods present day building design is open to question and examination. We believe that most manufacturers can produce this type of multicored ware with equal ease and that specifications should be revised to allow such brick to be produced.

Briefly, the precautions and changes needed in machining and firing are those expected with increased coring and weight reduction. Extrusion requires a slightly softer column and a reduced clay feed but the die balance to temper range has been found to be wider and better than with present dry-type dies. The streamlined and flexible core assembly produces a floating action but at all times retains the core grid within the center for good wall thickness control. A wide variety of brick textures are produced and all have been equally satisfactory on the multicored ware. Drying and firing of four different types of brick has provided considerable experience at various temperatures and schedules. In all instances marked improvements in heat transfer and oxidation have been obtained without sagging or distortion.

The all important question of mason reaction to this brick was approached with great caution. Previous attempts to increase coring or core size have usually been opposed by masons due to higher mortar consumption and other problems such as cutting and handling. After approximately one year, no adverse reaction has been obtained to this type of multicored brick. The combined factors of lightweight and coring design have provided the mason with a unit that is easier to lay and handle with reduced mortar use and no other job problems.



Back of die showing how bridge is built and cores attached to bridge.

The combined savings in clay, fuel, firing time, handling and shipping benefit both producer and consumer. Therefore, we decided to make the results of our testing available to other manufacturers, and also to sell these dies to other producers for a nominal cost. The cost of a standard brick die is approximately $350, which we believe is very reasonable for the amount of machine work involved.

Control Over Maintenance Costs in the Fire Brick Industry

by Robert S. Seifriz, Office Manager
Valentine Fire Brick Co.
Div. A.P. Green Fire Brick Co.*

One of the most difficult problems and equally difficult tasks is to find and establish an adequate control over maintenance costs. While it is fairly easy to find ways and means to measure the efficiency level of the regular operations of production, and control the costs that are connected with these operations, a number of obstacles must be surmounted before a good measuring stick can be successfully applied to maintenance work. Such a medium of measurement must "measure" fairly and squarely, and the result be acceptable to both the management and the men involved.

Before discussing how a Control System should be worked out and applied, we must first define the meaning of the word "Maintenance" and the territory it covers:

> "Maintenance includes all labor and supply costs that are necessary to keep machinery, equipment and any other production facilities in such condition as to secure a smooth and uninterrupted flow of all manufacturing operations within a plant."

This seems to affect a great many things. In fact, it includes every kind of work that is done by the maintenance men; be it general or specific repair, be it the manufacturing of replacement parts for machines, the changing of dies and press boxes, repair of life and other trucks or the manufacturing of items that are to be capitalized. It also includes all the supplies that are necessary to accomplish this work.

The great many variations, the uncertainty of occurrence, extent and urgency of most of the maintenance work made it quite difficult to set monthly norms or standards for maintenance costs. Even more discouraging is the lack of any tangible result with which to compare any standards.

The present trend towards some kind of control seems to rest in an effort to establish a budget for maintenance costs by estimating and accumulating all costs ascribable to the maintenance shop. This total thus arrived at is then divided by the number of anticipated maintenance hours resulting in the estimated average cost per one maintenance man hour, let us say $3.50. Each production or service center will then be charged with $3.50 for each hour worked in their behalf by the maintenance crews and the maintenance department credited accordingly. At the end of each month, there will be some "over or under absorbed" maintenance costs—differences which became part of the "Costs of Goods Sold." These differences then become subjects of discussion as to causes, etc. In other words, the budget is the basis of control. If the actual performance deviates very much from the established figures, a so-called flexible budget will give the answer. But is this answer sufficiently accurate? Hardly so, because even a flexible budget is not flexible enough since only very pronounced deviations of actual costs from standard expectations will cause the use of a changed budget. The result is that the showing of the maintenance shop is either over or under emphasized, causing the personnel to become skeptical about the whole system.

Such cost comparison, and with it, cost control, rest on rather weak legs.

If, however, a system could be established that promotes automatic flexibility to an unlimited degree so that all figures submitted would be accepted with confidence by all concerned, the first important step would have been made toward establishing a good and workable control system.

The second, and just as important step, is to deprive the maintenance costs of the long accepted conception of being an overhead item and make them an integrated variable part of each operation cost.

Every one acquainted with maintenance costs is aware that a two prong problem exists for controlling these costs:

A. Control within the maintenance shop.

B. Control outside the maintenance shop but within the production and services centers.

Budget Flexibility Necessary

Unlimited budget flexibility is necessary to control expenses in the maintenance shop itself; integration of maintenance costs as variable cost factors of each operation cost will make it possible to control these costs outside the maintenance shop.

As one may readily surmise, there is a very close relationship between these two control sections. Actually, they often control each other and contribute to no small degree to an automatic surveillance of the maintenance costs.

Still, there must be a separation for reasons that become quite apparent. For instance, there must be a clear-cut policy as to the handling of such supply purchases

*This is one of the prize winning papers presented at the recent Refractories Institute meeting held in Ashland, Ky.

which are part of the maintenance costs. It must be established which repair and maintenance supplies are to be charged to the maintenance shop, and which repair and maintenance supplies directly to the cost or service centers in which they are needed. It is obvious that a "cross-head assembly" of a press should be charged directly to the press department, while welding material, in most cases, cannot be allocated to specific jobs. The purchase cost of such material, therefore, should be charged to the maintenance department; or if policy directs that all steel purchases necessary for press box repairs should be charged to the maintenance department, such steel cannot be charged directly to the press department, no matter how tempting this may become. Strict vigilance must be kept to follow through with established policies; otherwise, the Standard Costs are worthless, and no control will be possible because this Standard Costs cover expenditures which in practice would then be charged to other departments.

In the following, an attempt is made to show how the two maintenance control systems are developed and how the control of cost is applied:

A. CONTROL OVER MAINTENANCE COST
within the Maintenance Shop

It has already been indicated that such a control system is based on the unlimited and automatic flexibility of the budget or anticipated costs.

How is such a flexibility established? By the simple procedure of using the number of hours worked by the maintenance crews to establish the budget—namely, multiplying the number of hours worked with the maintenance man hour costs.

Calculation of Maintenance Man Hour Costs—

Let us suppose the following:		
the number of men working in the maintenance shop		20
Average number of hours worked per month		170
Total hours worked (20 x 170)		3,400
Average hourly rate		$2.80
Total labor cost per month— 3,400 x $2.80 =	$9,520.00	
Overtime	None	
Add: Workmen's Compensation and Employer's Social Secuity (8.5%)	809.20	
Total Labor Cost		$10,329.20
Total Labor Cost—forwarded		$10,329.20
Other Expenses:		
Power and Light	$ 75.00	
Supplies	885.30	
Repair and Maintenance	100.50	
Total Other Expenses		1,060.80
Total Monthly Maintenance Shop Cost		$11,390.00
Total Cost per Maintenance Man Hour		$ 3.35

The $3.35 represents the amount that will be charged to the various production and service centers for each hour worked there by a maintenance man. The $3.35 is the standard maintenance cost per hour—a standard that will be used throughout the year except where radical changes require the calculation of a new standard.

After the Standard Cost per one maintenance man hour has been established, the next step is to apply this standard as a control factor of all cost incurred by the maintenance department during the month.

But instead of using a flexible budget, the actual number of hours worked by the maintenance men multiplied with $3.35 *will establish the budget. A difference of one hour will change the budget.* For instance, if only 2,800 hours were worked during the month, the budget will then amount to 2,800 x $3.35 or $9,380.00, which means that the actual costs that were incurred should not exceed this amount. If it does, the causes of any excess must be found, which is a step further in the application of a good control system.

How Is This Done?

A few lines back, it was shown how various cost factors comprise the total amount of the anticipated maintenance shop cost of $11,390.00, provided 3,400 hours are worked by the maintenance crew. Each cost factor represents a certain percentage of the total cost of $11,390.00. These percentages apply also to the $3.35 Standard Cost of each maintenance hour.
To illustrate:

Cost Factor	Percent to Total Cost of $11,390	Amount
Labor	83.58%	$ 9,520.00
Overtime	——	——
Workmen's Compensation and Social Security	7.10%	809.20
Power and Light	.66%	75.00
Supplies	7.77%	885.30
Repair and Maintenance in Shop	.89%	100.50
Total	100%	$11,390.00

Breakdown Given

Therefore, if the number of hours worked is only 2,800, the Standard Costs applicable for this month would be 2,800 x $3.35 or $9,380.00; and the actual cost incurred by the maintenance shop should be in the neighborhood of the Standard Cost of $9,380.00. The breakdown of the $9,380.00 would be as follows:

Cost Factor	Percent of $9,380	Amount
Labor	83.58%	$ 7,839.80
Overtime	——	——
Workmen's Compensation and Social Security	7.10%	665.98
Power and Light	.66%	61.91
Supplies	7.77%	728.83
Repair and Maintenance	.89%	83.48
Total	100%	$ 9,380.00

Using the procedure just illustrated, we have the exact amount of what the actual labor costs, supplies, etc. should have been. It is only logical that the next step is to compare the actual cost with the Standard Cost and calculate the difference or variance.
The following form could be used:

Cost Items	% to Standard Cost	Anticipated or Standard Cost	Actual Cost	Difference or Variance	Remarks
Labor	83.58	$7,839.80	$8,320.00	($480.20)	5% general pay increase eff. 2/1/60
Overtime	——	——	——	——	
Compensation and Soc. Se. Taxes	7.10	665.98	707.20	($ 41.22)	same
Power and Light	.60	61.91	65.00	($ 3.09)	
Supplies	7.77	728.83	620.00	$108.83	Welding Supply purchases below average
Maintenance	.89	83.48	67.00	$ 16.48	
TOTAL	100%	$9,380.00	$9,779.20	($399.30)	

COST COMPARISON

MAINTENANCE DEPARTMENT	Month—February, 1960 In Charge: J. J. Smith
Actual Hours Worked 2,800	Actual Cost $9,779.20
Anticipated Hours 3,400	Standard Cost $9,380.00
Difference 600	Variance ..... ($399.20)

Such a cost comparison can reveal a great many things. In the illustration just given, we find that actual costs exceed the anticipated costs by—$399.20. But we do not have to be satisfied with the amount as a total. The system offers an immediate break-down. We find that a 5% pay increase granted at the beginning of the month caused about $392.00 of the variance in labor cost, while the remaining variance may be due to the absence of three maintenance men (on account of illness) whose earning rate is lower than that of the average, pushing the average labor cost somewhat higher than anticipated.

There is a saving of $108.83 for supplies. Investigation reveals that less than average welding supplies were purchased.

Once in a while a month will show large figures for overtime. Since the Standard Costs do not provide for overtime, it becomes obvious that something must have gone wrong, Necessitating the overtime. Reports from cost or service centers will indicate what caused the necessity.

Management Becomes Suspicious

If, however, the overtime continued over a lengthy period, management should become suspicious since there is reason to believe that something is chronically wrong. Short flare-ups of overtime are signs of sudden and major breakdowns, which must be taken care of as soon as possible to sustain a smooth flow of production. In other words, the urgency of the job causes the overtime.

Long, uninterrupted periods of overtime can have a number of causes:

1. The Maintenance Shop is understaffed.
2. Consistent poor workmanship of the maintenance men keeping the equipment in poor running order, with the result of too many overhauling jobs.
3. Poor and obsolete production equipment.
4. Continuous carelessness of men on the production line.
5. Poor supervision of both the production and maintenance workers.

Actually, it is amazing what a seemingly insignificant charge of a few hundreds of dollars of overtime can bring to light.

Excess in any cost factor must be examined each month and the causes analyzed. For instance, high supply costs may be ascribable to poor housekeeping in the storeroom, where inadequate control allows duplication of purchases. This is especially true for small tools. An effort must be made to curtail a bad habit of promiscuous purchase requests for items that are in stock or not necessary at all.

There are almost unlimited possibilities to control every single cost item in every detail. This control, by adding overhead applicable to each man hour permits bona fide comparison between cost of an article if made in the maintenance shop or purchased on the outside. For instance, press boxes are a very large cost factor in the brick industry. It certainly is worthwhile to be able to decide, without hesitation, if they should be purchased or mode on the premises.

These are just a few examples of the many advantages that can be exploited with this control system. However, one may interject the question:

Since the maintenance cost control is based on the number of hours worked by the maintenance crews, does the system not invite the temptation of every maintenance man, and perhaps even the supervisors, to stretch out every job as long as possible? Each hour thus gained would automatically increase the budget allowance by $3.35 and the total amount would compare so much more favorably with the actual costs.

Such a contention would not be without justification if there would be no automatic control over the work done on behalf of production and service centers.

Such a control exists and is described in the following:

B. CONTROL OVER MAINTENANCE COSTS OUTSIDE MAINTENANCE DEPARTMENT
but within Production and Service Centers

A production center, more often called cost center, covers a certain operation or operations that are similar. In a plant that manufacturers fire brick, ne can find cost centers like these:

1. Raw material preparation for stiff mud operation.
2. Raw material preparation for dry press operation.
3. Extruding Machine
4. Power Presses
5. Dry Presses
6. Hydraulic Presses

Cost Items	% to Total Standard Cost	Anticipated or Standard Cost	Actual Cost	Difference or Variance	Remarks
Direct Labor	42.78	$3,500.00	$3,626.00	($126.00)	
Indirect Labor	8.92	720.00	503.00	227.00	
Compensation and Soc. Se. Taxes	4.40	360.00	351.00	9.00	
Repair Materials	12.47	1,020.00	988.00	32.00	
Power and Light	1.63	133.00	115.00	18.00	
Truck Repair Work	.52	42.00	36.00	6.00	
Change and Set	5.19	425.00	303.00	122.00	Long run of brick
Press Box Work	10.39	850.00	1,020.00	(170.00)	
General Repair	13.70	1,121.00	1,330.00	(209.00)	Cross head broke—had to be replaced
TOTAL	100%	$8,181.00	$8,272.00	($ 91.00)	

7. Handmade Special Shape Department
8. Tunnel Kiln Drying and Burning
9. Down Draft Drying and Burning

For each of these cost centers, a cost budget is also made up, somewhat similar to the one shown for the maintenance department. All cost factors are itemized and one of the most important cost factors are the maintenance costs. *They become a part of the operation and they should vary with the volume. They are considered variable costs.*

Let us use the Power Presses as an example and assume a certain quantity of brick pressed during a month:

#4 POWER PRESSES
Actual Output: 900,000 Equivalent

Month	February, 1960
Foreman	A. A. John
Actual Cost	$8,272.00
Standard Cost	$8,181.00
Variance	($91.00) Unfavorable

Cost Illustrated

The illustration (above) shows that of the total Standard Cost of $8,181.00—42.27% or $3,458.00 are ascribable to maintenance cost—namely:

Repair Supplies	12.47%	or	$1,020.00
Truck Repair	.52%	or	42.00
Change and Setting Up	5.19%	or	425.00
Press Box Work	10.39%	or	850.00
General Repair	13.70%	or	1,121.00
or a total of	42.27%	or	$3,458.00

However, these costs will vary in the same proportion as does the volume of brick pressed—a characteristic that is of greatest importance for the control of maintenance costs. For instance: If the quantity of brick processed would be only 450,000, the total Standard Costs applicable to this cost center would be one-half of $8,181.00 or $4,090.50, provided similar brick would have been processed through the cost center. The various maintenance costs allowable for the cost center would still be 42.27%, but not of $8,181.00 but of $4,090.50 or only $1,729.00. The actual cost should remain close to these percentage figures which exercise the control over the maintenance costs.

In the illustration just given, we can discover a difference of $122.00 in favor of the actual costs for—Change and Setting-up work. Why were these costs so low? Investigation will reveal that the presses enjoyed exceptional long runs of certain brick, cutting down the usual number of press box changes. Thus, the causes of each discrepancy must be found, analyzed and submitted to the Management. A general explanation would serve little purpose. For instance, it would be of no value to anyone to state that the excess of $209.00 in general repair costs is due to a major repair job on one of the presses. There must be a breakdown showing:

1. Which press broke down?
2. What part or parts broke down?
3. What may have caused the breakdown?
4. Could the part be repaired or had to be replaced?

Such a procedure becomes a very important segment of control because all major repairs must be recorded so that any given time, we will know the total amount of repair cost expended for a certain piece of equipment. This knowledge will lead to a decision if and when a machine has come to the end of its usefulness and reached the state of obsolescence.

Such procedure also requires a disciplined method of reporting to the management by the maintenance department. A short but accurate description of work done on any equipment will develop a sense of responsibility in any man involved in this work. The maintenance crew being compelled to report the exact time for an exactly defined repair job will hesitate to "soldier" on such a job. An experienced supervisor will discover such practices fast enough.

The supervisor himself carries a great responsibility in employing his men in the best possible way, grading the various work by the degree of urgency.

There is further control which originates simultaneously from various sides.

What will happen if there is a continued trend of high

Continued on page 56

A single bead of AC-DC Borod on leading edge of this auger flight increased life 300 to 400% over the conventional hard-facing technique.

STOODY BOROD HOLDS AUGER EDGES LONGER

Triples auger life, reduces downtime, eases extruder starts, cuts power requirements!

In a California brick plant, trouble was experienced starting the extruder after an overnight shutdown. Investigation traced the problem to a peculiar wear pattern developing on the outer edges of the auger flights. Normally, auger faces and gauges were hard-faced, but with the abrasive material processed this method allowed the flights to thin down on the outer edge. Clay then packed tightly between the wear-tapered flight edge and the extruder housing. Result? Balky starts, a hot-running thrust bearing and an overloaded motor.

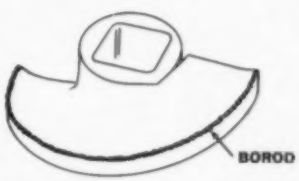
To overcome this difficulty, the weldor changed his hard-facing technique on new augers. A single, hard-metal bead was applied to the leading corner of the flight edge. This procedure held corner size and allowed wear to dish the flight from gauge to hub, as well as scour the surface. Packing of clay between auger and housing was thereafter eliminated.

A 15% to 30% saving in power was gained and the extruder started readily after shutdowns. Average runs between auger changes increased from 60,000 to between 200,000 and 250,000 bricks! Augers have been rebuilt as many as five times.

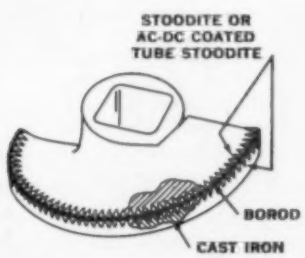
The Stoody Guidebook gives data on many more equipment-saving applications. Ask your Stoody Dealer for your free copy (check the Yellow Pages) or write direct.

STOODY COMPANY
11950 East Slauson Avenue
Whittier, California
Circle Service No. 34

HARD-FACING PROCEDURE



NEW AUGER: Apply a single bead of 5/32" AC-DC Borod to the corner of the leading flight edge.



WORN AUGER: Build-up severely worn face of cast iron augers with cast iron electrodes, then apply a bead of 3/16" Stoodite or AC-DC Coated Tube Stoodite on both gauge and leading face. Follow with a single bead of Borod welded on corner between the two Stoodite beads.

NOTE: Always pre-heat cast iron augers 2-3 hours to a "black" red before hard-facing. After hard-facing bring to a higher oven heat. Soak 2-4 hours and slow cool to prevent checking or breaking. Touch-up damaged deposits after installation to prevent cut-outs.

Continued from page 43

with 100 to 300 students per teacher. An attempt is being made to mass produce engineers with primary concern on low unit cost rather than quality.

Methods Change

Recruiting methods are changing. Ceramic Companies are delegating some of their management rights to "management specialists" offices. Such offices endeavor to hire by circulating mimeographed forms requesting engineers. Such forms frequently hit the basket unopened. Save the expense of such unnecessary middlemen and get better results by coming direct to the source.

Ceramic Engineering education is dying. The fault lies both with Ceramic Engineering facilities and industry. Its dying means an elimination of an important free research source that has benefitted the ceramic industry through the years.

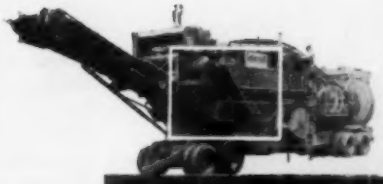
Research Builds Productivity

Robert B. Taylor, Director of SCPRF, reviewed the Foundation's research activities. He discussed current progress in gaining mason and contractor acceptance for the "SCR masonry process"* and stated that this is truly a group of techniques and tools that can increase the mason's productivity without undue fatigue increase. He cited an example of one contractor with two 9-man crews who were veneering six complete houses per day at a bricklaying rate in excess of 1400 brick per mason per day.

Market Survey Conducted

He also stated that market survey had been conducted in Milwaukee where the masonry process had been in use for six years in the residential field. Survey results indicate that the cost of bricklaying to home builders has fallen despite substantial wage increases during the past six years and the percentage of brick homes built per year in Milwaukee has doubled during that period. In an adjacent area studied as a control, and where the process had not been used, the cost of bricklaying has increased and the use of brick has remained relatively static.

*Reg. T. M., Pat. Pend., SCPRF



Cedarapids Super Commander Portable Crushing and Screening Plant, built by Iowa Manufacturing Company, Cedar Rapids, Iowa, produces up to 500 tons of material per hour.

This high capacity V-Belt Drive handles 60% more power in 30% less space!

Gates Super HC V-Belts solve product-development problem!

Iowa Manufacturing Company was faced with a problem: Transmitting 400 hp from a higher-speed engine in a space that had been just enough for conventional V-belts carrying 250 hp.

At higher speeds, centrifugal force made larger sheave diameters impossible. A wider span of belts was ruled out by Highway Department restrictions of overall machine width to eight feet.

Iowa Manufacturing's designers solved their primary problem of transmitting 60% more horsepower with new Gates Super HC V-Belts.

Because Super HC V-Belts have smaller cross section, use narrower and lighter weight sheaves, designers also succeeded in reducing drive weight, width and height—a decided bonus in portable equipment.

Nation-Wide Engineering Service

A Gates Distributor can show you how sheave diameters can be reduced 30% to 50%, drive space up to 50%, and drive weight 20% or even more with Super HC V-Belt Drives. Ask him for your free copy of *"The Modern Way to Design Multiple V-Belt Drives"*, or write to The Gates Rubber Company Sales Division, Inc., Denver, Colorado.

The Gates Rubber Company, Denver, Colorado
Gates Rubber of Canada Ltd., Brantford, Ontario

TPA 512

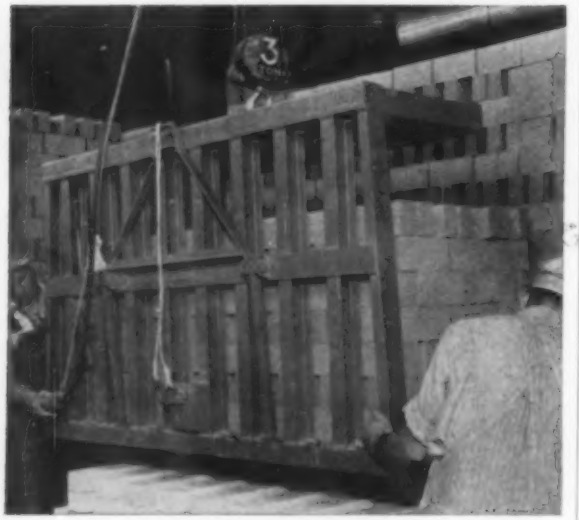
Gates

World's Largest Maker of V-Belts

Gates Super HC V-Belt Drives same hp capacity in smaller "package"

Circle Service No. 35

Make Brick Handling Easy...



PRIESTER Brick Forks

- Save Time
- Save Money
- Save Labor

Also Priester truck cranes for unloading from delivery trucks. Write for bulletin.

Brick in units of any size are handled by Priester Brick Forks. Automatic operation simplifies and speeds brick handling setting and drawing kilns, loading and unloading trucks and box cars.

Forks with flap grippers for cored and solid brick. Give service . . . take the hard work out of brick handling. Write today for more information.

BRADNEY MACHINE CO., INC.

Middletown, New York

Circle Service No. 37

Continued from page 53

maintenance costs in a cost center? There will be numerous complaints by different parties:

1. By the Foreman of the cost center. He is responsible for the showing of the cost center. He will receive the cost comparison as illustrated on page 9. He will realize fast enough that without the high maintenance cost he would have remained in the black by $160.00. Needless to say, any cost-conscious foreman will keep a keen eye on all maintenance work. He will practice preventive maintenance by continuously checking his machines, discovering defects, loose parts, etc. He will admonish his men to handle the machines with care. He will also recognize shoddy repair work. He knows he can maintain a high level of production only with well conditioned equipment.
2. By the Plant or Department Manager who will get the same report. If maintenance costs stand out like a turgid thumb, he will want to know the reason.
3. By the Maintenance Manager or Engineer who will receive the same report. It is his responsibility to look immediately into any excessive maintenance cost and find ways and means to correct the situation.
4. By the General Manager who will receive a synopsis of the maintenance costs with the overall production costs. Any unfavorable deviation of costs must be explained to him.

There may be cases, where the idea is prevailing, that the best is already being done and that maintenance costs cannot be further reduced without impairing good workmanship. Invariably, such cases offer an excellent challenge and a wonderful opportunity to discover astounding improvements.

Our own company can furnish a vivid example of such a situation. Our costs of changing press boxes and dies were rather high. Instead of accepting this fact resignedly, the Maintenance Engineer designed and had erected a steel monorail alongside the presses. The monorail carries the heavy boxes and makes it possible to ease them into the cavities with little effort. The result was a very substantial saving which is pointed out with pride each month. But it is hard to believe that anything would ever have been done about it, if the existing control system would not have put the finger on this sore spot.

There will be months when the difference between established Standard and actual maintenance costs will be large. Sometimes there may be hardly any repairs, while one or two months later high repair costs break out like a rash. Nobody, of course, can foresee any breakdown nor predict its severity. It is obvious that the efficiency of the maintenance crews should and connot be judged by *one* monthly performance. However, by averaging the performances over 3 or 4 months, a pattern or trend will develop which will draw a clear picture of what has or should have been achieved during this period. But monthly comparisons must always be made because it is the purpose of Standards to show any deviation that happen each month and bring to recognition the high expenses—a recognition which may have a very salutary effect.

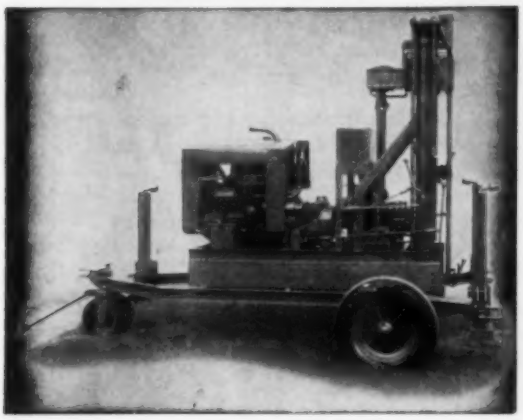
In connection with the process of averaging the main-

Continued on page 62

IN MINUTES . . . INSTEAD OF DAYS

Samples obtained from depths up to 100 feet with the all new

Parmanco



Model HV-172
Hydraulic Vertical Drill

- HEAVY DUTY
- FOUR SPEED AUGER
- FINGER TIP CONTROL
- 65 H. P. MOTOR
- ALL DRIVES MOUNTED ON TIMKEN ROLLER BEARINGS

RUGGED COMPACT EASY TO OPERATE

THREE LEVELING JACKS TO INSURE STRAIGHT HOLES. FIELD PROVED

Complete Information on Request

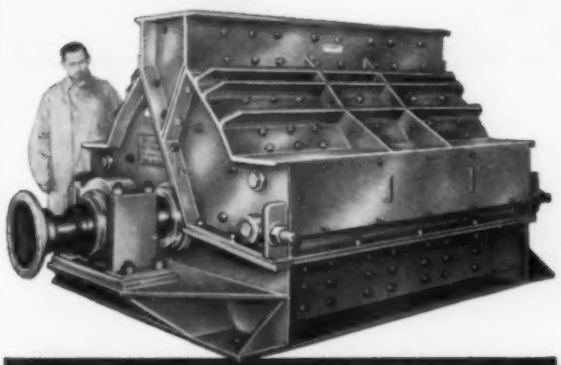
SPECIALISTS IN AUGER TYPE DRILLS

PARIS MANUFACTURING COMPANY

PARIS, ILLINOIS

Circle Service No. 38

1 LOWER COST GRINDING
2 POSITIVE PRODUCT CONTROL
3 MORE GRINDING IN LESS TIME
4 LESS UPKEEP EXPENSE



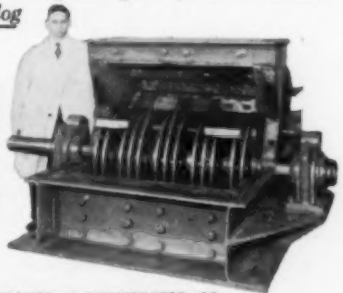
WILLIAMS

REVERSIBLE IMPACTOR

The economy, speed, quality control and low upkeep of a Reversible Impactor is unmatched for reducing bank run material to proper fineness for burned ware. In closed circuit systems, with external vibrating screens, absolutely uniform sizing to specifications is assured.

No grates are used thus minimizing upkeep expense. Reversible rotation makes manual turning of hammers unnecessary; adjustable impact blocks cut labor, downtime. Parts life is prolonged up to 7 times!

Write today for catalog

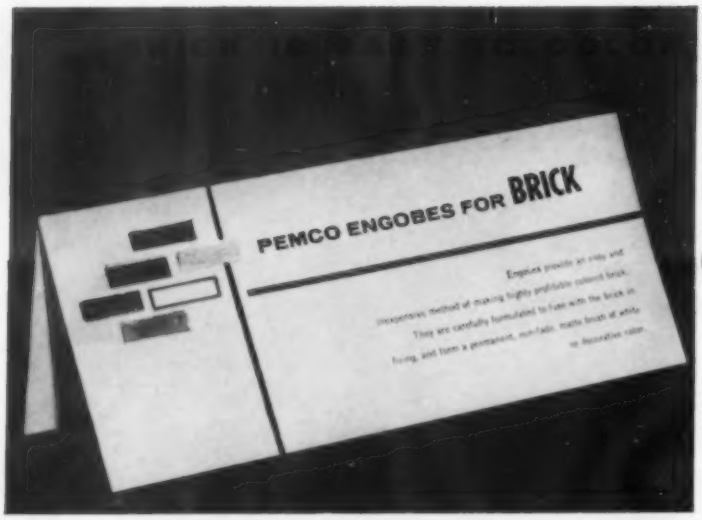


Internal view showing manganese steel impact blocks, hammers and liners. Rugged, heavy steel plate construction. Extra large shafts are mounted in oversize bearings sealed in self-aligning housings.

WILLIAMS PATENT CRUSHER & PULVERIZER CO.
2709 N. BROADWAY • St. Louis 6, Mo.

WILLIAMS
CRUSHERS GRINDERS SHREDDERS
OLDEST AND LARGEST MANUFACTURER OF HAMMER MILLS IN THE WORLD

Circle Service No. 36



WITH

PEMCO ENGOBES

Send for color folder

Engobes are compounds of clay, color and frit. Use wet or dry on unfired brick . . . color fuses permanently in the kiln.

Instructions for application are printed in our color chip folder. Write for your copy now.

50 YEARS OF RESEARCH AND A FLAME

PEMCO CORPORATION

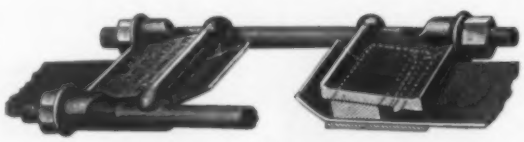
BALTIMORE 24, MARYLAND

Manufacturers of ceramic frits, inorganic pigments, vitrifiable glass colors

Circle Service No. 39

BULLDOG GRIP FASTENERS

- *Efficient*
- *Economical*
- *Dependable*



The Lugs that Stand the Tugs

Construct your kilns into a unitized structure, by making walls and crowns into one permanent unit. **Bulldog Grip Fasteners** of malleable iron are **stronger than the bands themselves.**

Tecktonius "Bull Dog Grip" Fasteners eliminate slippage. Tension is spread equally over the kiln walls, making a compact unit of kiln walls and crown, thus performing the most important structural operation on your kiln.

ECONOMICAL—LONG LASTING—EASY TO APPLY—NO RIVETS TO SHEAR—NO WEAKENING OF BANDS

Immediate Delivery . . .

ECTMC

E. C. TECKTONIUS MFG. CO.

RACINE 1, WISCONSIN

Circle Service No. 40

Synthetic High Temperature Lubricant Solves Kiln Car Lubrication Problems at A. P. Green

by George R. Arbocus
Lubrication Engineer
E. F. Houghton & Co.
Philadelphia, Pa.

No one knows better the value of trouble-free lubrication than A. P. Green. In a recent trip to their Mexico, Missouri operation, the writer was very impressed by the care taken to assure regular maintenance. An index card is kept on each kiln car which gives an accurate report on the status of maintenance. Notations are made indicating bearing inspection and re-lubrication periods.

Successful kiln car lubrication is a difficult proposition. Lubricants which have any tendency to gum or carbonize show up with tight wheels, increased ram hydraulic pressure, and general over-all sluggishness. The day by day application of greases is fast becoming past history with new products. One such lubricant, Hi-Temp No. 2409, a product of E. F. Houghton & Co., Philadelphia, Pennsylvania, has become the basic kiln car lubricant at A. P. Green. This synthetic grease is a combination of fine particle size graphite and clean burning, non-petroleum carriers and stabilizers. It was developed after approximately five years of research.

Hi-Temp 2409 was evaluated at A. P. Green's Mexico plant using the following procedure:

1. Twelve kiln cars with new bearings were used for the test. It took approximately two weeks to get all cars in service. Approximately four ounces of Hi-Temp No. 2409 was applied to each wheel. This amount was selected based on previous experience with similar bearings.
3. Temperature of the kilns reach 2600°F. to 2700°F. with wheel temperatures from 600°F. to 750°F.
4. Each car was under test approximately three months making a total of about twelve trips.
5. After this period, bearings were

Continued on page 60

new markets! new profits!
with "hand dressed"
BRICK
by **PITCHMASTER**

Here is a machine that incorporates the skills of the craftsman with more production muscle than twenty men.

Reach NEW markets, NEW profits by offering a NEW brick with greater depth of beauty.

- Culled brick can be converted to premium priced material.
- Fifty lineal feet of "Hand-Dressed" brick per minute.
- Instant adjustment to material height and depth of pitch. No limitation on material length.
- All material is conveyed through machine in a continuous flow by belts and rollers. Machine maintenance is reduced to the absolute minimum.

No other comparable machine in the field today will match the productivity and dollar profit that PITCHMASTER affords to make it a common sense investment.

NEW AND REVOLUTIONARY IN DESIGN! TESTED AND PROVEN

Names of satisfied users furnished on request

$4000.00
F.O.B. FRANKFORT, INDIANA

E & R MFG. CO. INC.
FRANKFORT, INDIANA

Circle Service No. 41

Continued from page 59

Four ounces of Hi-Temp 2409 is applied to wheel bearings with conventional lubricating equipment.

Kiln car wheel bearings and axle disassembled after 3-month test, showing clean, unworn surfaces.

examined. All surfaces were found to be coated with a light, soft film of graphite.

6. All ports were free and clear of any hard carbon. It was possible to push a test car by hand after initial inertia was overcome.

Relubrication is now practiced over a three to four month interval with no problems due to tight wheels or port blockage. Maintenance and down time due to inadequate lubrication has been eliminated.

Unique Formulation

The secret of the success of Hi-Temp 2409 is due to its unique formulation. It is a compound of a synthetic fluid vehicle and a lubricating thickener. In this lubricant the fluid acts as the vehicle to carry the lubricating thickener to the point where it is required.

The following chart shows the comparison of the effect of temperature on conventional grease and Hi-Temp 2409.

Conventional Grease

300°F. Possible thinning or slight melting depending on the type of thickener and petroleum lubricant used.

500°F. Both the soap thickener and the fluid lubricant begin rapid break-down. Oxidation is rapid.

700°F. Thick, gritty residue remains—made up of carbon, de-composed thickeners, gums and resins.

1000°F. Unsuitable.

Hi-Temp 2409

300°F. Hi-Temp 2409 melts and becomes a heavy fluid assuring thorough bearing penetration.

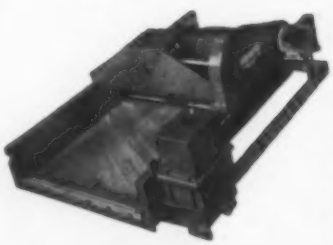
500°F. Fluid vehicle is rapidly driven off, leaving no gums, resins or other harmful residue. Only dry lubricant remains.

700°F. A film of dry lubricant remains to provide clean, smooth operation of bearings.

1000°F. Heat-resistant, dry-film lubricant on bearing surfaces.

end

Here are Important Economies in Fine Mesh Screening



The Leahy® screen with Flex-Elex® jacket heating is easily the most economical and most efficient screen for handling clays and shales.

The efficiency of the Leahy screen can be attributed to its fully integrated design and construction. Flexible electric connectors are completely eliminated. Power is carried through oversize bus bars from the transformer direct to the screen jacket, making it possible to get maximum thermal efficiency from the power consumed. Other features include differential vibration, vibration of the jacket only and a simplified method of changing screen jackets that cuts time and eliminates the need for breaking and remaking of separate electrical connections.

For full information send for Bulletin 16EH.

THE Leahy NO-BLIND VIBRATING SCREEN

— offers —

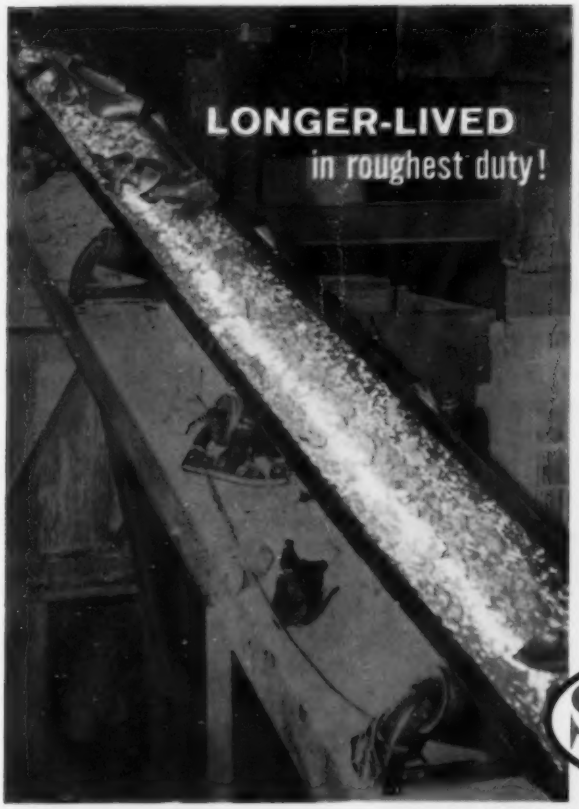
INTEGRATED HEAT SCREENING

THE DEISTER CONCENTRATOR CO., INC.

The Original Deister Co., Est., 1906

913 GLASGOW AVENUE FORT WAYNE, INDIANA

Circle Service No. 45



A typical Scandura application—inclined conveyor handling raw clay and scrap.

Scandura

GOLD PVC LINE

BELTING

Scandura PVC — the *original* solid-woven polyvinyl coated belting — won its spurs in the heavy ceramics industry, with many installations in Ohio's brick, sewer pipe, ceramic tile and drain tile plants. Today, Scandura PVC Belting is first choice everywhere for drag conveyors, off-bearing conveyors, bucket elevator belts and transmission belts — offering unmatched strength and endurance. Write for the Scandura facts; also for full information on our Fentonia and Scandinavia solid-woven bituminous treated brands for inclined scrap return conveyors and measuring belts.

Manufactured by

Scandura INC.

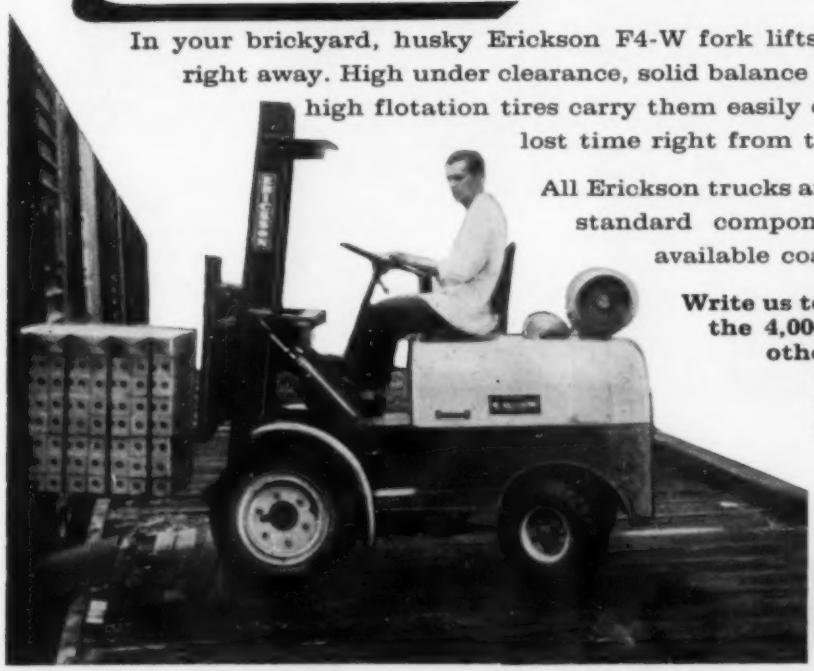
North Tryon Street
at Keswick Avenue
(P. O. Box 949)
Charlotte 1, North Carolina

Circle Service No. 43

REDUCE BRICKYARD OVERHEAD—NOW

with *Erickson* the workhorse of lift trucks!

In your brickyard, husky Erickson F4-W fork lifts can start cutting costs right away. High under clearance, solid balance and four big heavy-duty, high flotation tires carry them easily over mud and litter. Cut lost time right from the start.



All Erickson trucks are built using well known standard components. Parts are always available coast-to-coast.

Write us today for specifications on the 4,000 lb. capacity F4-W and other cost-cutting Erickson models—also the name of your nearest Erickson authorized Sales-Parts-Service dealer.

FAST PICK-UP—Good visibility, power steering and side-shifter make it easy for operator to move cubed bricks.

ERICKSON POWER LIFT TRUCKS, INC.
269 ST. ANTHONY BLVD. N. E., MINNEAPOLIS 18, MINN.

Circle Service No. 44

Control Over Maintenance

Continued from page 56

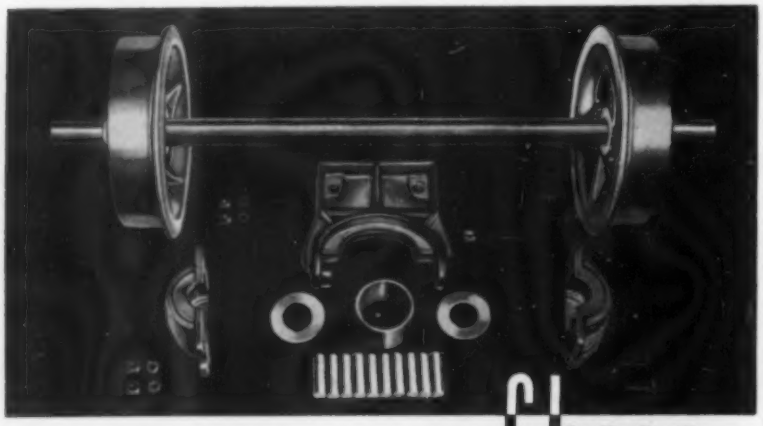
tenance costs over a period of several months, it should be mentioned here that such a procedure becomes a necessity, if and when an incentive system is worked out and installed for the maintenance shop. Such a system cannot be applied on a monthly basis, but must cover several months.

It is not the purpose of this paper to discuss the pros and cons of an incentive system for a maintenance shop, but it can be stated that the previously described two-prong control system is the most adaptable one for such an undertaking.

CONCLUSION

The calculations and illustrations submitted on the preceding pages should be helpful in finding ways and means to harness and control the heretofore "untamable" maintenance costs. We all know they represent one of the largest cost factors in the Brick Industry. The system as analyzed, offers a control of the maintenance costs inside and outside the maintenance shop—inside on the basis of maintenance man hours worked, and outside on the percentage basis of maintenance cost allowable as part of the total operation costs in a cost center.

The installation of the system is easy; also, the various phases of application. And most of all, it is easily understood by all concerned.

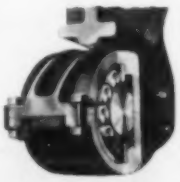


REPAIR NOW with Chase
WHEELS, AXLES and BEARINGS

Keep your kiln cars, dryer cars and transfer cars in full-time operation. Check now for needed replacements and place your order for Chase running gear. Chase wheels, axles and bearings can be adapted to nearly all makes of cars and any track gauge. In addition to our own bearings, we can furnish any other type of bearing or bearing part to your specifications. Every Chase replacement part is backed by more than sixty years of experience in the manufacture of equipment for brick makers.
Write, wire or phone HI 4-1189 collect for complete details and a prompt estimate.

Chase Patented Flexible Bearing

Dust-proof and oil-retaining, this well-known and proven bearing has kept equipment rolling smoothly through more than 80% of the brick plants in the United States. Make sure your kiln cars, dryer cars and transfer cars are properly equipped for years of trouble-free service. Specify Chase patented bearings.



Chase FOUNDRY & MANUFACTURING CO.
2350 PARSONS AVE. • COLUMBUS 7, OHIO
Serving the ceramic industry since 1897

Circle Service No. 42

First Brick Plant For Alaska

A new firm will begin making brick and tile out of Alaskan clay before the end of this construction season.

Located in Anchorage, construction of the plant is already under way according to the announcement by Frank Greenleaf, president of Atlas Tile & Brick Co.

Clay for the plant is located along the Turnagain tide flats and much of it is under water. The firm will have to use a bucket on a barge or a suction dredge to obtain the clay. Other clay from various spots in Alaska will be blended with the inlet clay to make brick, sewer pipe and tile.

Greenleaf estimated the plant will employ about 15 men initially in the $250,000 plant.

New Color Plant In Texas

A new plant of the National Paint and Manganese Company has just been opened in Brownsville, Texas. The company furnished Manganese oxides and manganese ores for the ceramic industry. They also operate a plant in Lynchburg, Virginia, for East Coast users. Both plants are a Division of the Howe Sound Company.

Stockholders OK Merger Proposal

Stockholders of Barber-Greene Co. and Smith Engineering Works, Milwaukee, recently voted to merger the two firms.

The Milwaukee firm, which manufactures products for the crushed stone, mining and sand and gravel operations, will operate as a division of Barber-Greene.

- **Fluorspar**
- **Magnetite**
- **Chromite**
- **Manganese**

We have recently built a completely modern plant in Brownsville, Texas, to process minerals for the brick trade to size and high chemical specifications. Custom grinding facilities are available.

This plant means more efficient service and, as a shipping point for other NP & M products, quicker delivery for our customers in the West and Southwest. It represents another step in our expansion program designed to meet the increasing demand for our wider range of products. Those listed here are all immediately available and will be milled to your requirements.

Our consistent growth over the past 65 years is a measure of the personal service you may expect from us as well as the quality of our products.

NATIONAL ALWAYS UNIFORM ESTABLISHED 1904

CONTRIBUTING ASSOCIATE SCPI

NATIONAL PAINT & MANGANESE COMPANY

A division of Howe Sound Co., Inc.

Lynchburg, Virginia

Circle Service No. 46

Get Better Production and Lower Costs with

UNIVERSAL HEATED SCREENS

Universal Screens with the efficient Unilec heating jacket are a screening combination that get results with the toughest materials. You can not only eliminate blinding, but screen finer—and at far lower cost per square foot of screening area!
Write today for details!

UNIVERSAL VIBRATING SCREEN CO.
Racine, Wisconsin
Quality Screens Since 1919

Circle Service No. 47

HOMMEL **WATER-QUENCHED POTTERY FRIT**

Added protection against glaze crawling is yours with Hommel water-quenched frit. It's fast ground. You'll find Hommel frits completely free of metallic iron particles . . . a glaze with lower solubility. Gives a smoother finish and better quality . . . at lower cost. Write for samples, with or without glaze stains.

"The World's Most Complete Ceramic Supplier" BCR-760

THE O. HOMMEL CO.
PITTSBURGH 30, PA.
WEST COAST • 4747 E. 49th STREET • LOS ANGELES

Circle Service No. 48

CLASSIFIED ADVERTISEMENTS

Limited to Want Ads, Consulting Engineers, or Used Equipment ads, (wanted or For Sale)

TRANSIENT WORD ADS: 12c per word for each insertion.

Headings such as "Wanted", "For Sale", etc. and address to be counted as part of the ad. Minimum charge $2.00 each insertion.

POSITION WANTED ADS: $1.50 for 25 words or less; each add'l word 10c.

FOR USE OF BLIND ADDRESS: (Care of BRICK & CLAY RECORD) count as 15 words to cover cost of handling and forwarding replies.

DISPLAY-BOX TYPE ADS

$15.00 per inch. On advance orders for twelve consecutive issues, 12.00 per inch per insertion. (No retroactive adjustment).

An inch is measured vertically on one column, 2¼" wide; three columns on a page. For a two-column advertisement add together height in each column.

Display classified advertisements are set and rates apply in half-inch multiples. (1 inch minimum; 5 inch maximum).

Add 25% to above rates for Reverse Plate (white lettering on black background).

All rates based on payment in advance except on regular contract.

No Agency Commission or Cash Discount

BRICK and CLAY RECORD

5 South Wabash Avenue, Chicago 3

WANTED—HELP

WANTED: Assistant superintendent for small brick plant in Oregon manufacturing face brick, excellent opportunity with good pay. In replying state complete background in brick industry in detail. Write Box 7-ABL, care of BRICK & CLAY RECORD.

MANUFACTURER'S REPRESENTATIVE

Clay Machinery Manufacturer of crushers, grinding pans, sewer pipe and drain tile presses, grinding mills, mixing tanks, seeking sales representative. Several good areas available. Protected territory, commission basis. Well established representatives only. Please indicate territory covered and lines carried. Write to

THE STEVENSON COMPANY
Wellsville, Ohio

CERAMIC ENGINEER—Assume complete management of Texas plant manufacturing brick and tile. State complete background. Reply to box 7-AGO, care of BRICK & CLAY RECORD.

Brand new most modern Brick and Tile Plant with tunnel kiln under construction outside of Mexico City, looking for energetic and thoroughly experienced superintendent. Excellent salary and profit sharing. Please give complete resume and references in first letter. Write Box 6-ABH c/o Brick & Clay Record.

PRODUCTION SUPERINTENDENT, HEAVY CLAY PRODUCTS. EXCELLENT OPPORTUNITY FOR ADVANCEMENT, STARTING SALARY $12000.00 A YEAR. Write Box 6-ABJ, c/o Brick & Clay Record.

WANTED: Working Foreman familiar with all phases of the manufacture of face brick and capable of installing fork lift truck, brick setting system in 30 ft. round down draft kilns—in small West Coast plant. Excellent opportunity with good pay. State complete background in brick industry. Write Box 7-AGT, care of BRICK & CLAY RECORD.

POSITION WANTED

PLANT Manager or Superintendent desires position with reliable and progressive firm. Years of experience in manufacturing of tile and face brick in both periodic and tunnel kilns. Family man with good references. Address box 7-AFS, care of BRICK & CLAY RECORD.

CANADIAN Ceramic Engineer presently in responsible management position desires position on management team of U.S. or Canadian Company with interests in Industrial Minerals or Heavy Clay Products. Experience includes research, development and management in these fields. Resume on request. Write box 7-AZG, care of BRICK & CLAY Record.

FOR SALE—USED EQUIPMENT

1-Toronto 6' Type "C" Dry Pan with 20 HP chain drive with new screen plates and all new wearing parts. Can be converted to Wet Mixing Pan. Good condition, rebuilt and guaranteed.

THE TORONTO FOUNDRY & MACHINE CO.
Toronto, Ohio

Going out of business. Must sell immediately.
Steele #18 Automatic Brick Cutter—used very little.
New Reel Complete—still in crate, for cutting oversize brick for above cutter.
150 HP GE 450 RPM Motor.

J. GRANICY
1519 East Avenue K, Lancaster, California
Phone WHitehall 2-3098

FLINT CLAY—P.C.E. 34-34—Crude or ground —For sample & analysis, write Consolidated Clay Mines—Negley, Ohio.

FOR SALE—
USED EQUIPMENT

1.) 200 single deck dryer cars 24" gauge, slats running crosswise for package setting.
2.) Approximately 40 triple deck cars, slats running lengthwise.
3.) One Chambers twin tub pugmill without drive or clutch.

WEST BROTHERS BRICK COMPANY
6600 Sheriff Road
Washington 27, D.C.

RAILS AND DRYER CARS

250 Single Deck Dryer Cars
40 Triple Deck Dryer Cars
50 Rack Cars

All sections rails and track supplies. New Wood Pallets made to your specifications.

M. K. FRANK

461 Park Bldg. Pittsburgh 22, Pa.
480 Lexington Ave. New York 17, N. Y.
155 Lake Street Reno, Nevada
1200 Metropolitan Bank Bldg. Miami 32, Florida

FALL BARGAINS

DE-AIRING MACHINES, #30 JC Steele FRH #6WJ6, Bonnot Combination, Chambers #9C, American 404-A, International #470, International Falcon.
CUTTER, Steele #18, Model BLH, Freese C-25, and C-20.
ROLLS, Disintegrating, Steele 24 x 24, 12 x 24, smooth roll 18 x 24.
DRY PAN, 9' Stevens, 9' Bonnot.
SCREENS, Tyler Hummer, Cedar Rapids, Sturtevant.
DRYERS, Rotary. Various sizes from 2x30 to 8 x 175.

FERNHOLTZ MACHINERY CO.
8468 B Melrose Place
Los Angeles 46, California

FOR SALE

BRICK & HOLLOW TILE MACHINES—Dearing & Non-dearing
PUG MILLS—Single & Double Shaft
GRANULATORS—Chambers 51 & Freese 16
CUTTERS—Steele 18, Freese & Hand Drain Tile
DRY PANS—7', 9'
HAMMER MILLS—Many Sizes & Micro
CONICAL ROLLS—Chambers #10
SMOOTH ROLLS—16x30, 30x36, 16x16
DISINTEGRATORS—12", 18" & 24"
JAW CRUSHERS—24x13, 24x36, Lab Size
ROTARY DRYERS & KILNS—2x30, 3x30, 6x50, 7x50, 8x125
LAB MILLS—Hammer Mill, Cone Crusher, Cone Blendor
SLIP LAWNS—Crossley Double Deck

5" LAB PUG MILL EXTRUDER
LAB SIGMA BLADE MIXERS

HAND TILE PRESS
MIXERS—Lancaster EAG 3 & 4, Clearfield 610, Blystone, Simpson No. 3 Apke Sigma Block
SCREENS—Hummer 3x5, 4x10, Cedar Rapids 3½ x10, Single, Double & Triple Deck
FEEDERS—Disc, Apron, Reciprocating
HARDINGE CONICAL MILLS—4', 6', 7', 10'
PEBBLE MILLS—Various Sizes
PANS PRESSURE BLOWERS—Many Sizes
PYROMETERS, Recording, w/couples

LIST YOUR SPARE EQUIPMENT WITH US

ROBERT L. CLARE
212 Rector St. Perth Amboy, N. J.
Phone Hillcrest 2-0061

BRICK MACHINES: FRH Jr. Steele 30, 30, 50, dearing. Others: Steele #1, #2, Ray. Freese GH w/10' pug & D18 Disc Feeder. Boyd 4 mold, Gates 2 mold DRY PRESSES 4, 5, 6, 8, 9', DRY PANS, 8' WET PANS. MILLS: 10, 11, 12' PUG, Raymond 5047 Roll, 2424, 3630, 3640, 3650, Dixie, #30, #40 Williams Hammer, 5x17, 5x21 Ball. West, Staty COMPRESSOR 750 CFM, d/c motor DRYERS: 3x15, 4x20, 5x24, 6x25, 8x70. TUNNEL KILNS: Ladd Cronin circular 70' dia. Four-123-150' long. 500 sgl. deck DRYER CARS 24" & 26" ga. 6-Crossley 24x24" FILTER PRESSES Steel Buildings 30'x90', 80x220'

MID-CONTINENT EQUIPMENT CO., INC.
8321 Gannon St. Louis 32, Mo. Wydown 1-2826

DESIRABLE EQUIPMENT AT REALISTIC PRICES

Crushers and Hammer Mills
Muller type Mixers-Mills
Rotary Dryers and Kilns
Sifters, Screens, Separators
Filter Presses and Filters
Ball & Pebble Mills
Raymond Imp Mills, All Sizes
Presses and Pellet Machines

Send for "First Facts"

FIRST MACHINERY CORP.
209-10th St. Bklyn. 15, N.Y.
ST. 8-4672; Cable "Effemcy"

STOP GREEN SCUM
Insure Permanent Color-Control On Light Face Brick with MINERVA FLUORSPAR

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Continued from page 40

end of the dryer approach 450° F. so that the last two cars in the dryer are actually under preheating conditions.

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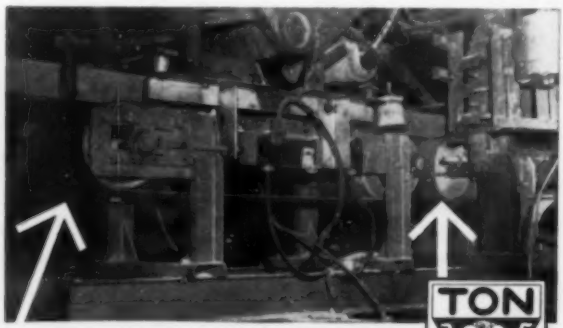

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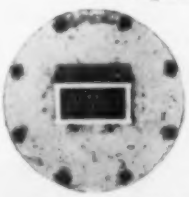

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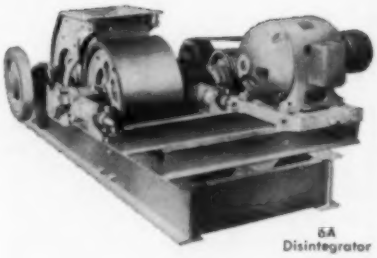
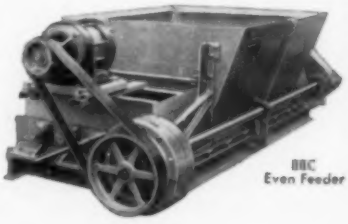


6A Disintegrator



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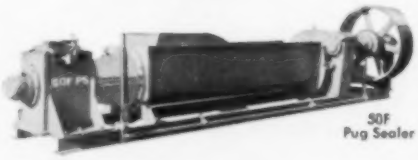

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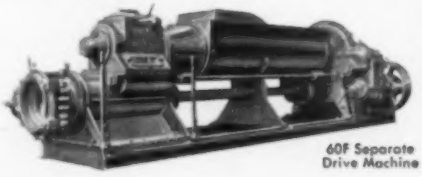

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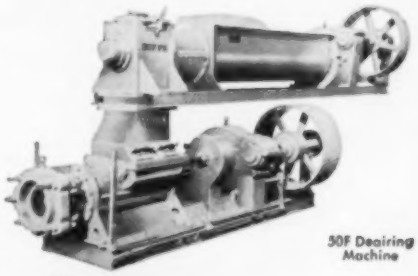

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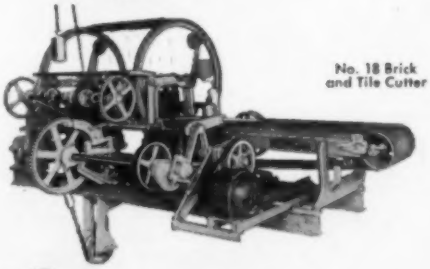

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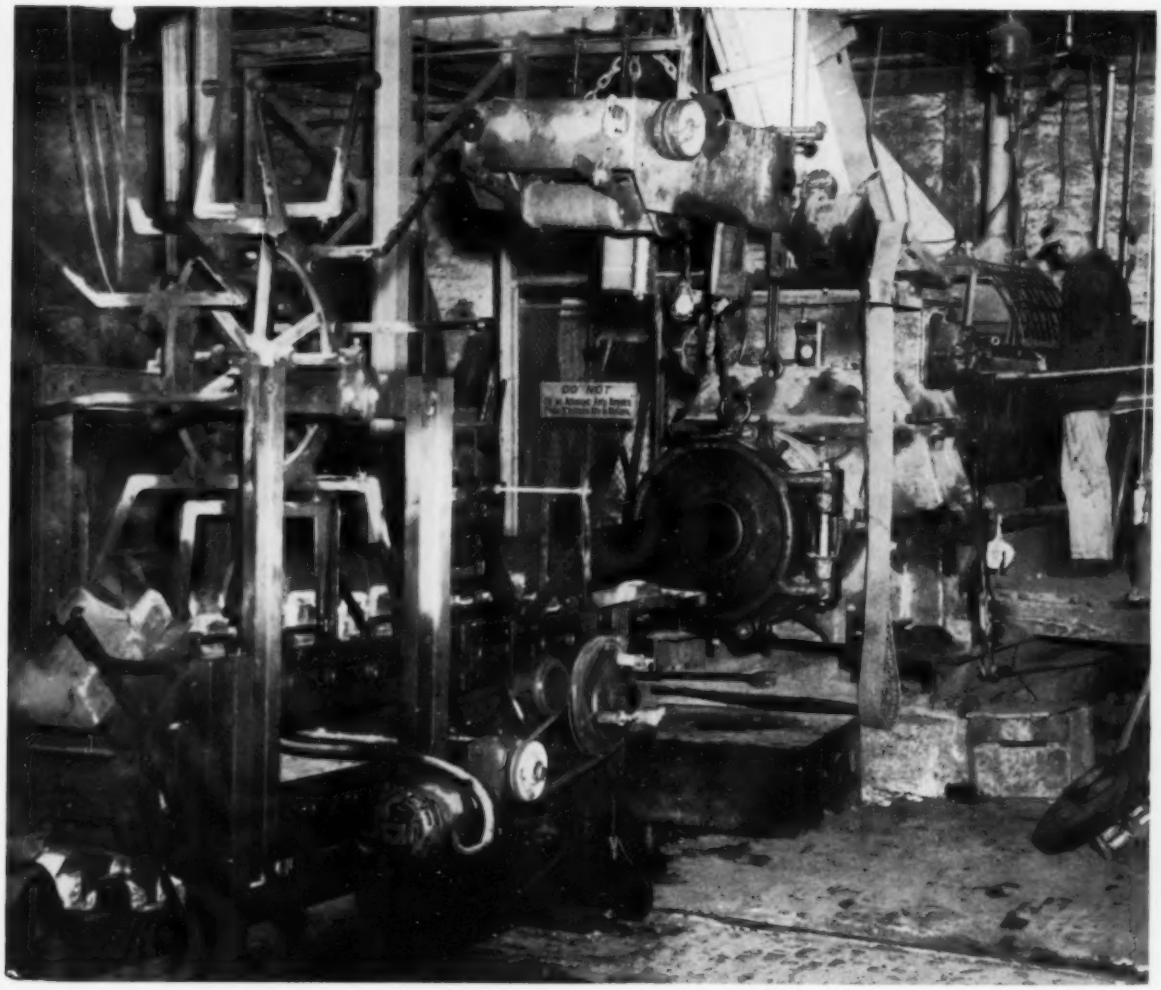

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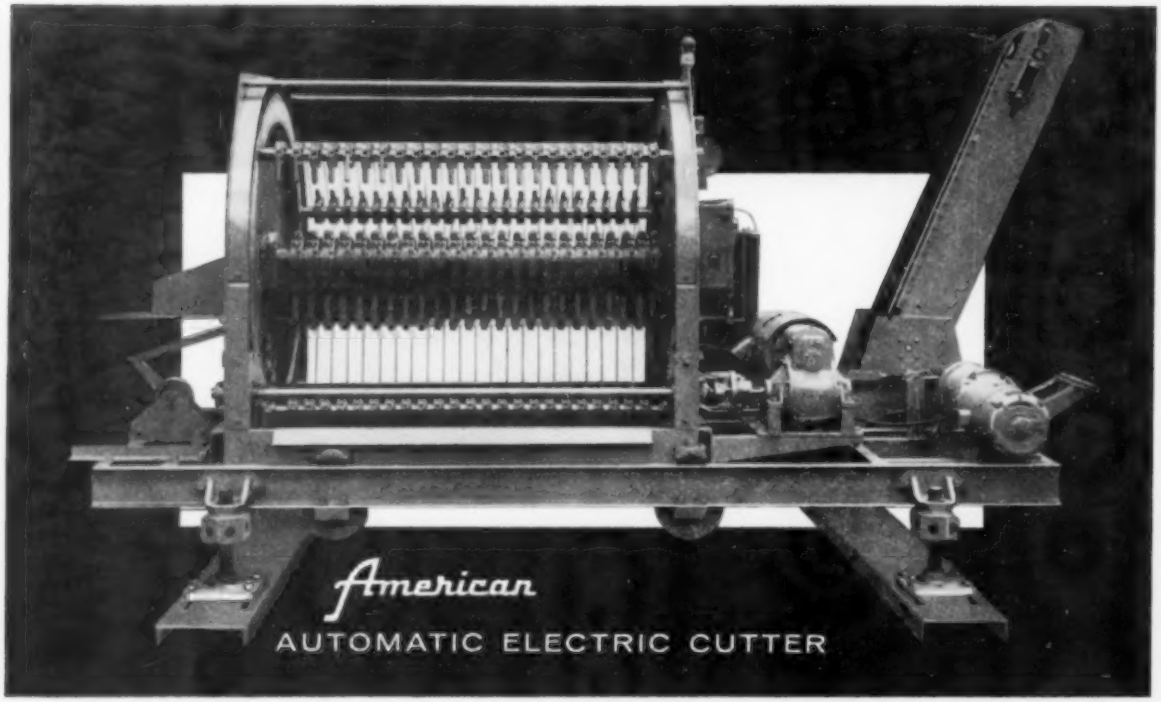

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